

MEMO.

THE numerous errata and solecisms in the foregoing pages may be considerably ascribed to the fact of the writer being on active service on the Frontier of Nepaul, five hundred miles from the *Military Orphan Press*.

CONTRIBUTIONS

TO THE

MILITARY MEDICAL STATISTICS

OF THE

BOMBAY PRESIDENCY.

BY

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MDCCCLI.

J.
Dr Marshall Hall
With the Author's kind
regards and best wishes
21 Rutland Square
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MILITARY MEDICAL STATISTICS OF BOMBAY.

PART I.

On the Military Stations, Barracks, and Hospitals, occupied by Queen's Troops, in the Bombay Presidency, from October 1847 to July 1850.

DURING this period, Queen's troops have been stationed at COLABA, BELGAUM, KIRKEE, POONA, DEESA, KURRACHEE, HYDERABAD in SCINDE, PESHAWUR, and ADEN. For the materials of the descriptive notices here given, I am indebted partly to the reports of my industrious and talented predecessors and co-labourers of the Queen's Medical Service in this Presidency, partly to my own observations and inquiries during two Annual Inspection Tours, which embraced every station I have attempted to describe.

COLABA.

a. Station.—COLABA is a small, narrow island, to the south by east of Bombay, continuous with it at ebb tide, but separated at high-water by an arm of the sea, 1100 feet wide, across which have been thrown a stone causeway and bridge, with a carriage-road. It is little more than two miles in length, varies in breadth from 1650 to 350 feet, and forms the south-west boundary of Bombay harbour, in north latitude $18^{\circ} 50'$, east longitude $72^{\circ} 53'$. The soil of Colaba is calcareous, and consists chiefly of minutely comminuted shells, intermixed with clay, which is derived from the decomposition of the basaltic rock, forming the substratum of this and the neighbouring islands. Towards the southern extremity, the rock rises above the surface, and attains its highest elevation, of 50 feet above the level of the sea, in the mount on which the lighthouse stands. In other parts, the island rises very little above high-water mark. In the south-west monsoon, and during spring tides, which rise 18 feet, the sea encroaches on the land, and, at neap tides, leaves the irregular and rocky beach covered with slime and mud, and marine vegetation, which occasionally exhale very offensive odours. The trees, shrubs, and flowers that adorn the compounds and dwelling houses of the inhabitants, are almost the only vegetable productions cultivated in Colaba. The seasons are divided into the hot, cold, and wet, and observations of the temperature, extended over eleven years, give this result :

		Average.	Max.	Min.
Hot season,	March 1 to May 31,	. 85½°	... 95°	... 79°
Wet „	June 1 to Sept. 30,	. 83½°	... 72°	... 50°
Intermediate,	Oct. 1 to Nov. 15,	. 84°	... 95°	... 72°
Cold season,	Nov. 16 to Feb. 28,	. 78°	... 85°	.. 65°

Betwixt the rainy and cold seasons the temperature is generally high, from the sun being still near, but without the clouds, which had intercepted his rays in the monsoon. The barometrical range is inconsiderable ; but the humidity of the atmosphere and of the soil, during the south-west monsoon, is very great. Fifty-three inches of rain have been known to fall in one month, that of July, and the annual average of eleven years was 78·47. The soaking atmosphere of the monsoon, with the thermometer so high as 80°, imparts a sensation of chilliness, every thing becomes damp and mouldy ; a piece of polished iron will rust in a few hours, and woollen clothing is rendered indispensable.

Though Colaba has been considered one of the healthiest spots in the Presidency, from November to May, the Queen's regiments do not always find it so. Fewer admissions may doubtless occur in December, January, and February, the coldest season, yet the casualties are more numerous in these than in any other months of the year, more especially from hepatic abscess and acute dysentery, separate or combined. The prevailing diseases are, remittent fever, dysentery, hepatitis, and not unfrequently cholera morbus, though, fortunately, there has been no very severe epidemic visitation of that disease in any part of the command since 1846.

b. Barracks.—COLABA Barracks are on the west side of the island, within from 50 to 100 yards of the sea-shore, and about twelve feet above high-water mark. They consist of six large buildings, here called pendals, of burnt brick and mortar, with flagstone floors, tiled roofs, and plastered walls, twenty inches thick, for single men ; and four, of a smaller size, of mud and bamboo, with clay floors, tiled roofs, and walls only four inches and a-half thick, for married men and their families.

Large Pendals.—The large pendals are disposed in two parallel lines, with a north-eastern aspect,—four in the first, two in the second,—at a distance of 140 feet betwixt the lines, and 100 feet betwixt every two of the same range. Every large pendal, with its verandah, ten feet wide, surrounding it, covers a surface of 230 by 43 feet, and is divided into one principal, and four small rooms for serjeants at each end. The large room is 212 feet long, 23 wide, 13 high at the sides, 23 in the centre, to the ridge pole.

The floors of the front pendals are paved with a flagstone, so attractive of water, as to be never dry in damp or rainy weather.

Every pendal has five folding doors, and ten windows on each side, and four doors opening into the smaller end apartments. The door-ways are eight feet high, and have folding pannels, fifteen inches deep, above the doors. The window openings are five feet eleven inches high, three feet wide, and within two feet of the floor. On the lee-side they are glazed, without shutters; on the windward side, shuttered, without glass; on both sides, divided into two pairs of sashes or pannels, graduated in size to regulate the intensity of the air, heat, and light admitted through them. In the front pendals, the slope of the roof is broken, and hitched up three feet in its whole length on both sides, and the interspace filled with perpendicular sashes of glass, which may be opened and shut at pleasure, by ropes and pulleys. Instead of this, the two rear pendals have ten ordinary skylights, each of ten panes of glass, on the lee-side roofs only. On the windward side of all the pendals, the verandahs may be partially or completely closed, by a lower and an upper series of shutters, on horizontal hinges, their whole length.

Betwixt the doors and windows are racks and pegs for arms and accoutrements, and every soldier has, at the foot of his bed, a box for his clothes and necessaries. Each of these barracks was originally intended for 150 men, and the whole cantonment for 1000. The number they are now required to accommodate is 102 only, being 94 in the large, and one serjeant in each of the 8 small rooms. Every man, therefore, has 52* superficial feet. The bedsteads consist of 3 planks supported on tressels, 45 on each side, with 4 feet $8\frac{1}{2}$ inches for each,† and 2 at each end, leaving an interval of $10\frac{1}{2}$ feet betwixt the two rows, and an average space of 18 inches betwixt every two beds. From the height of the rooms, and the want of ceiling, the proportion of cubic space for every man is more considerable, though the peculiarity in the construction of the roofs would make the exact estimate difficult.

Twenty-two feet behind every pendal, and joined to it by a covered passage, are two washing houses, 17 feet 7 by 9 feet 8 in size, with an open verandah betwixt them, in which stand a water cask and a tub for ablution, but without basins of any kind. The men have provided for themselves, in addition, eight or nine large water chatties. In these washing houses are no windows, but innumerable holes, 6 inches square, for the admission of light and air, obliquely through the walls.

Small Pendals.—The small pendals, four in number, are at the left end of the large, and 90 feet from them. The front and rear pairs are 44, and the two of each line 26 feet apart. They form each a single room, 95 feet long, 20 broad, with side walls 10 feet 9, and ridge pole, 16 feet 2 inches high. Their walls are of bam-

$$* 212 \times 23 = 4876 \div 94 = 52.$$

$$\dagger 212 \div 45 = 4.71.$$

boo and mud, blue washed, and $4\frac{1}{2}$ inches only in thickness, their floors of clay, and roofs tiled. They are surrounded by verandahs, and have each four doors and ten windows. The room and verandah roof form one continued slope. The windows have folding shutters but no glass.

LATRINES.—The privies are three in number, behind and to windward of the pendals, a few yards within, and 12 feet above high water mark; two for men, joined to the six larger, one for women, joined to the four smaller pendals by raised and covered ways, terminating in a bridge path, and from 200 to 400 feet in length. The sea breeze passing over the soil of the privies, uncovered at low water, and exposed to a powerful sun, spreads an offensive and unwholesome vapour over the whole cantonment.

Other Buildings.—Fifty paces in front of the barracks, and at proper intervals, are the cook houses, four in number, the quartermaster serjeant's house and stores, the serjeant armourer's shop, and a ball court for the men. Some hundred yards further in front, and on the opposite side of the public road, is the more elevated but still superficial ridge, on which the mess and dwelling-houses of most of the officers have been built, and which has been recommended, within the last twelve months, by a mixed committee of the Honourable Company's officers, as well as many years ago, by the late Inspector-General Loinsworth, as a site for new and improved barracks, more eligible than that on which they have been so long permitted to stand. The canteen is half way betwixt the two barracks of the rear line.

QUEEN'S DEPÔT.

The Queen's Depôt is near the middle of the island, on the road from Bombay, and consists of two buildings, on different sides of an enclosed court, 200 by 140 feet in size. On the third side is a guard-house, and on the fourth a kitchen. The brigade-major occupies a hired bungalow near it, and the depôt serjeants-major a temporary building, communicating by doors with the largest of the two occupied by the men. This is a substantial stone building, with a porch in front, in which some of the invalids take their meals, and a verandah to the porch, in which they perform their ablutions; but which is much too small for that purpose. The house is 80 feet by 60 in length and breadth, and divided into one large central and six smaller side rooms, with several lobbies. It has a lofty roof, two sky lights, and on each side three large windows and one door. The windows are shaded by matting. Eighty men, accommodated in this building, would have each nearly 60 superficial feet.

The second is a temporary building, with a back wall of stone, front and sides of mud and wattles, only four inches thick, a tiled roof and clay floor. It is 97 feet by 20 in size, and sub-divided

into two apartments. The side walls are 11, and the ridge pole $17\frac{1}{2}$ feet high. At the rate of 60 superficial feet for each, it will accommodate 32 men. The margin of the roof is raised some inches above the front and side walls, to give free issue to heated air.

To windward of, and seventy paces behind the dépôt, with a covered path and bridge betwixt them, is the privy, within high water mark. This path has a hand railing for one third of its length, to prevent men, frequenting it in the dark, from falling over among the rocks on either side.

Surface drains, lined with uncemented stones before, behind, and betwixt the barracks, carry the superfluous water of the rainy season into Back Bay.

Prison Cells.—Outside of the enclosure of the Queen's Dépôt are three prison cells, and near the hospital ten more. Four of these are attached to an old lock-up house. The rest have been built since 1846. These are in groups of six and three, arranged on two sides of a paved area, which is nearly ten feet wide, and raised two feet from the ground. The cells of the same row are ten feet apart, and those of one row opposite the interspaces of the other. The walls are of brick, floors of clay, roofs of tile, each is nine feet eleven inches square inside, and they are lofty and well ventilated. There is a small privy at the end of each range. The two ranges are enclosed by wooden iron-spiked railings.

The barracks were built at different times, betwixt 1813 and 1827, when the last pendal was completed.

Sick Officers' Bungalow.—On the same side of the road, and a little to the north of the Queen's Dépôt, are two bungalows for the accommodation of officers, sent sick from other stations to Bombay. In each bungalow are a sitting and two smaller side rooms, with dressing and bathing closets &c., one being intended to accommodate two captains, and the other two subalterns. In the compound are two kitchens, stabling for four horses, and accommodation for native servants.

c. Hospital.—The Hospital was built in 1822–23, and is on the eastern side of the island, to the south of the officers', and 320 yards beyond the men's quarters. The site is low and swampy, to correct which a large tank has been excavated and arched over, by means of which much of the water that formerly inundated the front of the hospital is carried off, and the floors and walls rendered much drier. The walls are of burnt brick and chunam, the roof tiled, the floor of flagstones, raised about two feet and a half above the surrounding level. The building consists of a centre, bearing N.E. by N., and two wings, crossing the extremities of the centre at right angles, to form two oblong squares, open to the east and west, or with the inner side common to both, and the outer deficient. The centre is 207 feet in length, 23 in breadth,

The following tabular statement of its temperature and moisture in the different months of last year, is given by assistant-surgeon Dr Anderson of the 22d, in his annual report on the health of the 78th Regiment.

1848-49.	Maximum.			Minimum.			Mean.			Monthly Mean.	Rain.	
	Sunrise.	2 P.M.	Sunset.	Sunrise.	2 P.M.	Sunset.	Sunrise.	2 P.M.	Sunset.		Inches.	Cents.
April,	76°	92°	84°	67°	76°	86°	76°	87°	78°	78·6	2	07
May,	74	88	82	68	74	71	70	83	78	79	6	50
June,	70	78	75	67	72	70	70	75	71	72	7	99
July,	72	80	75	68	69	63	69	73	78	71	19	80
August, ...	69	74	72	67	69	68	68	72	70	70	5	40
September,	72	80	78	86	72	70	69	75	72	72	3	69
October, ..	74	84	79	67	70	68	70	78	75	74·3	5	83
November,	72	79	76	66	72	68	68	76	73	73·3	1	57
December,	68	80	76	64	75	70	66	77	73	72	0	0
January, ...	64	81	76	52	69	60	61	76	73	70	0	52
February,	68	87	79	60	80	73	65	83	77	71	0	0
March, ...	72	90	83	63	83	73	69	86	77	77·3	44	34
Average, ...	70	83	78	65	75	70	68	78·4	75	75	53	37

The seasons of Belgaum are the rainy, cold, and hot. The southwest monsoon and rainy season prevail from May to October. The rains set in with great violence, generally towards the evening, or from night to night, and are generally preceded or accompanied by tremendous thunder-storms. By the middle of May the hot weather has ceased, and the country become green, and in the continuous rain-falls of July and August the temperature is low, the air damp and raw, making fires pleasant. 53·37 inches of rain fell in the year 1848, and 19·80 inches, or considerably above a third of the whole, in July. With exception of one heavy shower, there was hardly any rain from November to March; in this interval the heat was moderate in the day, and the night very cool, without the piercing cold experienced at more inland stations. The monsoon continues sometimes to be felt in the end of October and beginning of November, with cool breezes and occasional rain. The hot season is of short duration, beginning in February, attaining its height in March, and ending in May. In the cold months, and up to April, a dry east wind prevails during the day; but from January, the atmosphere over the Ghauts being cool and moist, a westerly sea-breeze sets in regularly every afternoon about 4 P.M., and makes the climate delightful. This refreshing breeze was absent in February 1849 only four, and in March only two, days.

Belgaum is next to Colaba in uniformity of temperature and

degree of atmospheric moisture, and holds a middle place, in the dry season, betwixt the low country and the hill convalescent stations. It is two degrees farther south, 200 to 300 feet higher, and somewhat nearer the Ghauts than Poona. At Belgaum, the temperature is lower and more steady, and nearly twice the quantity of rain falls. The cold westerly winds of Belgaum, in December and January, do not blow at Poona; and while hot winds prevail there, in March and April, a soft sea breeze blows the whole afternoon at Belgaum, causing its climate to approximate to that of Mahableshtwur, with the differences due to latitude and elevation. It is the coolest and healthiest station occupied by Queen's troops in the presidency. The average maximum heat at 2 p. m. is 82° , and the average minimum, just before sunrise, 65° . The highest maximum at 2 p. m., 92° in April, the lowest, 74° in August. During two or three unusually cold days, the thermometer fell to 52° . The daily range is inconsiderable, and the mornings and evenings are pleasantly cool, even in the hot weather.

Venereal and rheumatic complaints are peculiarly prevalent and severe at Belgaum; and the establishment of a sanatorium at Vingorla, 76 miles distant, on the sea shore, or at Raghur Fort, which overhangs the sea, 10 miles farther south, has been suggested, as a probable means of relief and cure.

The native city is large, and said to contain 11,000 inhabitants. The fort is on its east, the military cantonments on its west, distant from each other above two miles, and the village of Shapoor, within half a mile to the south. The European barracks and hospital are built on a low, dry, gravelly ridge, which terminates half a mile to the west, in a small conical hill, and slopes very gradually on the east to the native town and fort. These stand on the edge of a rich alluvial well cultivated valley, having an easterly course, with a range of hills to the south; on the higher western extremity of which is the small fort of Yellowghur. The surrounding country is irregularly mountainous, interspersed with ridges of gravel and small alluvial plains and valleys. Four or five miles off the hills are higher rocks, covered with jungle, which generally run west to merge in the Ghauts. The low, stony, and gravelly hills to the east and north become covered with grass at the end of the rains.

There are no considerable rivers, swamps, or marshes within many miles of the cantonment. Rice, the sugar cane, and excellent potatoes, are cultivated in the neighbourhood. On both sides of the native town, and on the rising ground appropriated for the officers' bungalows, are clumps of bamboos, with mango and other large trees. In the fort, which is laid out in garden-grounds, richly cultivated, and surrounded by a ditch a mile and a-half in circumference, are the houses of staff-officers, an arsenal,

artillery barracks, an English church, two old temples, a mosque, and other buildings.

The cantonments comprise quarters for one European and two native regiments.

b. Barracks.—The European barracks consist of two parallel ranges of buildings, not chequered, but opposite; seven in the first, fronting south-south-east; six in the second, with an interval of sixty yards betwixt the two ranges, and fifteen to eighteen yards betwixt the buildings of each. Eleven are used as barracks, one as the canteen, and one as defaulters', serjeants' mess, and band rooms. At proper intervals, behind the barracks, are two kitchens, and two privies; in one line, the school-room, library, and serjeant-major's house; in another, and farther back on the northern slope of the ridge, the patcheries, or quarters for married men. On the face of an opposite ridge, 400 yards from the barracks, and separated by a small stream, which becomes rapid in the monsoon, is the hospital. On the banks of this stream are two wells, which supply, one, the barracks and hospital with excellent drinking-water; the other, a plunge-bath and kitchen garden with water, sufficiently pure for bathing and irrigation,—the expense for making and working the last being defrayed from the canteen fund.

Of the eleven barracks, the large rooms are twenty-four feet in breadth; three $156\frac{1}{2}$ feet, and eight 192 feet in length. The walls are thirteen feet high, and from one foot nine inches to two feet thick. Each has three or four ventilators in the roof, eight doors, and twenty to twenty-eight windows. The walls are of stone, plastered, and whitewashed; the roof of tiles, with chunam and lathing under them; the floors of the verandah and rooms of hewn stone, and raised from the ground only to meet irregularities of surface. The windows unglazed; the shutters and doors of wood. On the south-west front is an open verandah, ten feet eight inches wide, with a roof projecting two feet beyond the floor. This opens at each end into two serjeants' rooms, seventeen feet by ten in size. There is no verandah behind; in its place, at each back corner, are a washing closet and a urinary, ten feet by six each,—the latter communicating with a small cess-pool, seven feet beyond the end wall. The washing closets have chatties of drinking water, as well as casks and tubs for ablution. Some of the cess-pools are not larger than two feet square. The urine is removed daily, on bullocks, in leathern bags. The urinaries in the back corners of the barracks are very offensive.

Every barrack is surrounded by a trench, fourteen inches wide, and two feet deep, to carry off the rain caught by its roof.

The three smaller barrack-rooms are furnished with sixty, and the eight large with seventy-two, arm-racks; but this proportion

is generally exceeded, as seventy-six men frequently sleep in one of the smaller, and eighty-five in one of the larger size. When crowded, men sleep opposite and close to the windows, either with these shut, to the inconvenience of the whole room, or open, with themselves exposed to a draft of cold air. In the dry months, the men breakfast and dine in the verandah, which being open and exposed to the full violence of the south-west monsoon, cannot be used for that purpose during several months of the year, when the doors and windows on that side must be kept shut, and the men crowded into the inner room, rendered very dark by the want of glazed windows, and hot and filthy by this appropriation. Lieutenant-Colonel Douglas, in 1847, and Superintending-Surgeon Montgomery, in 1849, recommended the present verandah to be enclosed by a wall, with glazed windows, and another to be built, but left open, on the north-east side, improvements which, it is to be hoped, will be yet adopted.

The quarter guard is seventy-five paces to the south-west of the barracks, and consists of a lock-up house, twenty-five feet long, six feet and a-half broad, with iron-barred windows, and a guard-room for a serjeant, corporal, and twelve men. At some distance are the prison cells of the old barracks, still in use, but few in number, and low in the floor, though of good construction. There are other cells attached to the guard-room, at the fort gate, where prisoners sentenced to confinement before trial are placed.

The latrines are thirty-three paces from the nearest barracks. Each has a screen wall, in front of four doors, with twenty-six seats in one line, and ventilation holes, fourteen inches in diameter, in the walls. The latrines are emptied twice a-day, from under another screen wall behind.

The canteen is in the centre of the second line of barracks. In September 1849, the average strength of the non-commissioned officers and men of the 78th regiment was 1087. The consumption of

Arrack, was . . .	770 galls.	Porter, was . . .	2592 galls.
Brandy, . . .	50 „	Port Wine, . . .	2 dozen.
Gin, . . .	1 „	Bottled Beer, . . .	320 „
Rum, . . .	26 „		

The money spent by the men for these articles was, 4429½ rupees.

The canteen prices being per dram of three ounces.

Arrack, . . .	1 anna.	Port Wine, . . .	1 anna.
Brandy, . . .	2½ „	Beer, per bottle . . .	4 „
Gin, . . .	2½ „	Draft Porter, per	
Rum, . . .	2 „	quart, . . .	2 „

The commissariat supplies arrack and porter, a Parsee contrac-

for the other articles. Last month bottled beer was one anna cheaper per bottle than now, and the consumption diminishes as the price increases.

In the regimental school, the pupils are ninety men, twenty-three boys, and twenty girls. Children go to school from four to fourteen years of age, and are taught reading, writing, grammar, arithmetic, and geography.

Patcheries.—The patcheries are four in number. At some distance on their right is a workshop, in which are plied the five crafts of carpenter, shoemaker, tinsmith, sadler, and gunsmith. The patcheries are divided into two pairs, by an interspace of forty-two paces, and their privy is fifty yards behind them. Each of them accommodates twelve families, with two small apartments, a front verandah, and a cooking place.

The plunge-bath is in the bottom of the valley, near the patcheries, nineteen feet long, five and a-half feet deep. It is of stone, lined with chunam, has a thatched roof, boarded floor, a raised wooden platform along one side and end, with a flight of steps to the brim. Its supply of water is drawn by bullocks from a well at hand. Another well near the hospital supplies it and the barracks with the best water. It is thirteen feet wide, the surface water twenty-seven feet deep. The water is drawn by two bullocks working a windlass, and decanted from leathern bags into an oblong stone cistern for use.

c. Hospital.—Men's.—The hospital is surrounded by a thick stone wall, eight or nine feet high, which encloses an area of 426 by 162 feet. The dead-house is on the outside of the wall, twelve feet from the left front corner, and is fifteen feet ten inches square. A porch, fifty feet long, projects twelve feet from the south wall, and, on different sides of the gateway, fourteen feet wide, are the hospital-serjeant's house, and guard-room. The hospital consists of a centre and two wings, joined together by covered ways, the wings being 141 feet apart, sixty feet from the front, and forty-three feet four inches from the side walls. The central part of the area is covered with gravel, the side parts with grass; and these last would be greatly improved by a row of trees planted in each, to enable convalescents to take exercise safely under their shade. The cooking house is at one extremity, and the privy in the middle of the back wall; the former connected to the centre wing by a covered way, which divides the back court into two. The centre and right wing are one storey, the left wing two storeys high, each wing furnishing one large ward, twenty-two feet wide. The central is $51\frac{1}{2}$ feet long, $14\frac{1}{2}$ feet high in the wall, twenty at the ridge pole, with a door and two windows in each side, and

six ventilation openings about four feet by two, within fifteen inches of the roof. The floors are of cowdung, renewed weekly; walls of laterite, or, as it is called in Ceylon, cabook, plastered and blue washed within and without, and the roofs of black tiles. The centre being built on a slope, its floor is five feet above the foundation at the west, and twenty inches only at the east end. It is surrounded by a verandah, enclosed in front, and partially on the left side, by cabook walls, ten feet eight wide, including their breadth. This ward is for eighteen patients. The right wing has a verandah, walled in on the outer or south-west, and open on the inner side. The enclosed verandah has two doors, eleven windows, and at one end a small ward. The inner verandah is raised five feet above the level of the court, and is railed in. Its large ward has two doors, sixteen windows, and sixteen oblong grated ventilators. It is 133 feet long, and intended for twenty-two patients. The glass of the verandah windows is painted green. Behind the end verandah is a washing house, for personal ablution, $14\frac{1}{2}$ by 7 feet in size, with four groups of ventilation holes instead of windows in the walls. The left wing is two storeys high; its ground floor, on the inner side, one; on the outer, four feet above the level of the court. It has verandahs before and behind, supported by massy piers, three feet broad, twenty-two inches thick, with arched doorways, five feet eleven inches wide, betwixt them. There is a central passage through this wing on the ground floor. In the corners of the verandahs are two staircases, a bath, and a straw-room. On the ground floor are a ward for prisoner and itch patients,—the steward's and medical stores,—a surgery and apprentices' room.

The upper floor is a ward for forty-two patients, of the same construction and dimensions as in the right wing. Its floor and that of the verandahs is boarded. The inner verandah, open to the south-east, is enclosed by a wall with glazed windows, painted green, and no shutters. The back verandah is supported by square columns, and enclosed by a perforated wall, five feet three inches high. But to enjoy the view, which, from this side of the hospital, is very good, the patient must stand on tiptoe. At one end of this verandah is a small ward, fourteen feet ten inches by nine feet two inches in size. The large central ward and enclosed verandahs accommodate 102 patients.

Women's.—The women's hospital is behind the right wing of the men's, and communicates with it by a gateway, through a partition wall. Like the men's, it is surrounded by a high wall, leaving ample space for exercise within it. The hospital, placed in the middle of the area, which is overgrown with grass, consists of one ward, 39 feet 10 by 21 feet 10 inches in size, paved with

clay and cowdung, with two doors, eight windows, and four square ventilators. It is surrounded by a verandah, enclosed by a wall on both sides. The assistant nurse's room is in one corner of the verandah. There is a detached kitchen and privy, the latter provided with a covered passage. The matron has a separate house in the compound.

ROAD FROM BOMBAY TO POONA.

In travelling from Bombay to Kirkee and Poona, the first twenty miles are by water, across an arm of the sea, up a small river to Panwell, a considerable straggling village, a few miles inland, to which the tide ascends. On their first arrival in the command, Queen's troops are generally transhipped to steamers, in detachments, and carried to Panwell, whence they march to Poona in seven days, including one day's halt.

Staging Pendlas.—Within the last twelve months, six staging pendlas have been erected along the road, at distances of from seven to thirteen miles, for the accommodation of 200 men. These are substantial stone buildings, roofed with tile, and paved with clay and cowdung, in the form of three sides of a square, enclosing an open space, eighty-one feet by sixty-six in size, with a parapet wall and gateway in front, or on the fourth side. The outer wall is nine feet five inches; the inner, four feet; the ridge pole, thirteen feet six inches high. Betwixt the inner wall and roof, to the height of three feet and a-half, the building is open all round, and the outer wall is pierced by small square ventilation holes, bent in their course through it, to break the force of the wind. The centre and each side are ninety-seven feet long, and fourteen feet wide, giving every man seven feet by two feet seven and a-half inches; and although this accommodation would be altogether inadequate in a barrack-room, it appears to be quite sufficient for health, if not for comfort, in open, well-ventilated sheds, required to be left clean by the last occupants, and engaged for about eighteen hours only by the same party. These pendlas are a vast improvement on the tents used formerly on this, and still on other less frequented routes in the command. A portion of each side apartment is partitioned off for the accommodation of women and children; but it is only available to them when the detachment is small: they must either go before or follow when this is 200 strong. Neither cooking-sheds nor privies are yet provided; but the addition of the former has been recently sanctioned by Government.

[Since this was written, a cooking-shed and six raised stone

foundations, for the tents of commissioned officers, have been added to every staging pendal on the Poona road.]

The sites selected are generally well supplied with water, &c., and too distant (generally about two miles) from the more populous villages to be likely to tempt the soldier, fatigued with his early march, to seek in them gratifications prejudicial to health. Larger pendals, capable of accommodating the wing of a regiment, were recommended by the late Inspector-General Loinsworth, in May 1840, to be erected on the very spots now selected, with one exception. The ascent of the Bhore Ghaut, an irregular and steep mountain pass, five miles and a-half in length, on the second day from Panwell, is generally very trying to weakly men, some of whom often require to be brought from it in carts or palanquins, to Kandalla, where the day's halt occurs.

At Panwell, the country is little above the level of the sea, and the soil alluvial, presenting, at low water, an extensive surface of slime and mud.

From Panwell, through the Coucan, to the foot of the Ghauts, a distance of twenty-four miles, the road is good, there are several stone bridges over the rivers, and the scenery is varied and beautiful. That of the Ghauts themselves is magnificent, and, on attaining the summit, we no longer experience the hot encraving atmosphere of the Coucan.

Karlee Rock Temples.—A little beyond Kandalla, the country becomes again level, and, at the distance of seven miles, are the Buddhist rock temples of Karlee, which well repay the fatigue of a ride and walk to them; for you can go part of the way only on horseback from the travellers' bungalow. From Poonowla, within eleven miles of Poona, there is a marked increase of population, cultivation, and other indications of the approach of a large town. Basalt appears, soon after leaving Panwell, in some places naked, in others covered with a thin argillaceous stratum, mixed with fragments of the rock. The road is, in general, very good; and at intervals of about twelve miles are travellers' bungalows, built by Government, where rest and refreshments may be procured at a very moderate price.

KIRKEE.

a. Station.—KIRKEE is the only station in the Presidency provided with permanent accommodation for a regiment of European cavalry.* It covers an area of some four square miles, and

* This account of Kirkee is taken chiefly from a "Medico-Historical Abstract of the first year's service, in the East Indies, of Her Majesty's 14th Light Dragoons, by J. W. Moffat, Esq.," then surgeon of that corps, which appeared in the Transactions of the Medical and Physical Society of Bombay, vol. v. 1842.

is well defined by the river Moula, which, meeting an obstacle to its direct south-easterly course, in a spur from the Western Ghauts, takes a northerly course for three miles, till, meeting the extremity of a low ridge, it is enabled, after a short easterly run, to resume its southing. The sloping sides of this ridge are enclosed within the deep sweep of the river; on its extremity is the village of Kirkee, and near it, on a lower part of the ridge, the military cantonments. These lie E.S.E. from Bombay, about two miles and a-half to the north of the city of Poona, with the river Moota interposed half a mile below the city, which is close on its right bank; the river is crossed by the Sungum Bridge, immediately before its junction with the Moula.

The station is almost entirely dependent on the river and the monsoon rains for water. Six or seven wells have been dug through the solid rock, in different parts of the cantonment, and the springs have been reached, about the depth of twenty-six or thirty feet. They afford a scanty supply, even with the surcharge of water received from the monsoon rains, and occasional showers; and, generally, before the hot dry season has passed, they are nearly exhausted. The water, however, is of a pure hard quality, after depositing a moderate earthy sediment; it would require a depth of seventy feet to be reached, to secure any steady supply. But the river prevents any absolute want of water, being in some places under a mile, nowhere above two miles distant. It is here between twenty and thirty yards in width, and two feet in depth, running sluggishly over a gravelly or rocky, but in many places a rich muddy bottom. During the monsoon rains, it rises from twelve to twenty feet, and forms a strong, rapid, heavy current, of muddy water. Fish, as trout, murrell, eels, are often caught in it, and have been found wholesome. Delicious water-melons grow along its sides.

The cantonment is much exposed. The winds and seasons are here the same as throughout the Deccan. The hot, parching, northerly winds of April and May are felt very severely, and the glare and heat then, from the light bare soil, are most intense. Luckily, it is not entirely beyond the influence of the alternate sea breeze in the afternoon, which, although frequently slight, and then lessened or interrupted by the higher land to the west, is generally sufficient to give us fresh cool evenings. Kirkee has a bleak dreary aspect during the prevalence of the south-west monsoon; from the violence of which, however, it is most protected.

The district does not bear a good reputation for health, the water is not esteemed, the climate is considered cold, the bazaar not well supplied. The average term of life amongst natives is estimated at thirty-five years. There seems no particular ende-

mial disease; but remittent fever and agues are very prevalent, and easily excited by exposure to an easterly wind, or after any excess of fatigue. The prevalent sickness is from improper nourishment, and want of protection from a variable climate; hence glandular disease is obstinate and common; rheumatism prevails, and many cases of idiotey may here be met with. Epidemic disease, when it appears, makes dreadful ravages, visitations of cholera or of small-pox only ceasing with the failure of victims.

b. Barracks.—The barracks, &c. were erected in 1826 and 1827, and taken possession of in June 1827. They are built in six parallel lines of pendals, or barrack rooms, from E.N.E. to W.S.W., with the front to N.N.W. The front line is appropriated for the eight troop serjeant-majors' quarters. The four centre lines contain four barraek rooms or pendals: in each and in the rear line are placed the quarter-master's stores, the schoolroom, the serjeant-major's quarters, the canteen, two cooking houses, and the regimental artificers' shop. They are constructed of half-burned bricks with chunam, thatched over with straw and leaves, and have a flooring of well-cemented gravelly clay. They have an airy appearance, and are found to be dry. Each line of building is separated by a street 190 feet broad; and the rooms, in the same line, are distant from each other 116 feet. The rooms in the different lines are not placed directly in the rear of each other, but chequer ways. The barrack rooms consist of a single storey, the floors of which are raised about two feet above the ground, have a tiled verandah on the rear and left or western gable, seven feet in breadth, with a portion at the angle built up, for keeping water, and for the purposes of personal ablution. Each room is $109\frac{1}{2}$ feet long, 11 feet of which, at the eastern end, is partitioned off, and subdivided for two non-commissioned officers; $23\frac{1}{2}$ feet broad and 20 feet high to the centre ridge of the roof, or $11\frac{1}{2}$ feet by the side wall, with four doors and 20 windows, placed opposite to each other. The windows are raised $2\frac{1}{2}$ feet above the floor, and are 5 feet by 3 feet in size, filled with wooden boards, which are divided into three unequal parts, the upper part of which opens upwards and outwards, the two lower inwards. Three chimney like Venetian ventilators are placed on the ridge of the roof.

The barracks are calculated to accomodate a regiment 700 strong, each room being capable of containing, with ease and comfort, 38 men and 2 non-commissioned officers, each of whom has thus a space of 61 * superficial, 960 † cubic feet.

There are two privies, one on each flank, large and commodious,

$$* 109.5 - 11 = 98.5 \times 23.5 = 2314.75 \div 38 = 60.90.$$

$$+ 2314.75 \times 11.5 = 6619.625 \times (8.5 \div 2 =) 4.25 \times 2314.75 = 9837.6375 \\ = 262 \div 38 = 960.$$

placed at the distance of 150 feet, and, from the excrement being received in baskets, and removed every morning, any unpleasant smell rarely extends far, and is generally prevented. Reservoirs for the urine have been dug at a little distance from the S.W. angle of each barrack-room, which has a walled shelter attached. These reservoirs are covered, and of such a size as to obviate the necessity of emptying them for six months, although opened and cleared out every day.

About one hundred yards distance, on each flank, a street of stone, mud, and thatched huts is built, to the number of twenty or thereabouts, with a distinct privy for the accommodation of married soldiers, none of whom, excepting serjeants occupying the partitioned ends of the pendals, are mixed with the single men in barracks.

There is a considerable extent of clear space around the barracks in front, to the extent of 100 yards, used as a private parade ground, for forming and inspecting the troops, and in the midst of which is the main-guard-room, and beyond this the horses are piequetered. In the rear there is a wider space, of about 150 yards, between them and the line of officers' bungalows, which is used as a foot drill ground, and in which the rear-guard-room is situated. On the southern slope of the ridge, extending to the river, are the large and sterile lawns or compounds of the officers; and the extensive open plain, on both sides, affords ample ground for field exercises and riding instructions. About 100 yards to the right of the barracks, situated at the extremity of the open space in front, in an airy dry situation, are twelve square buildings of brick and tiles, in three lines, each ten feet square, which are the cells for the solitary confinement of prisoners. They have a door, and are ventilated by oblique barred openings, in the upper and lower parts of the walls.

c. Hospital.—At a distance of from 200 to 700 yards, to the left or westward of the barracks, a little in advance of their front line, upon a more elevated spot, and with an open approach, the hospital stands. This building is of later erection than the barracks. It was finished in 1830, and first occupied in June of that year. It is a large, irregular, oblong structure, built of burnt brick, cemented with chunam, and tiled, with a flooring of flag-stones, raised between two and three feet above the surrounding ground. It has a N.N.W. aspect, and is dry and airy. The wards form three sides of a square, open to the N.N.W., enclosing an area of $91\frac{1}{2}$ feet by $121\frac{3}{4}$. Each side forms one large ward, except that on the south, which is divided into two, by a passage leading into the surgery. The two side wards are each 90 feet long, 24 feet broad, and $22\frac{2}{3}$ feet high in the centre, or 16 feet high by the side wall, with two doors 8 feet by $4\frac{1}{2}$ feet,

and fourteen windows $6\frac{1}{2}$ feet by $3\frac{1}{2}$ feet, placed $8\frac{1}{2}$ feet above the floor, and three chimney-like ventilators on the ridge of the roof. Each is capable of containing 38 patients, at the rate of 57* superficial and 1097† cubic feet.

The doors are of teakwood, and the windows of glass, painted green, which open inwards; such a spacious ward, with nothing to obstruct the circulation of air, and furnished simply with light iron beadsteads and plain teapots, contains conveniently thirty-eight patients. The southward side is divided into two wards of smaller dimensions, of fifty-six feet long each, but corresponding in width and height, with two doors and eight windows, one of which in the south wall is very large, six and a-half feet by seven feet, and each capable of containing twenty-three patients, at the rate of 61‡ superficial, 1174§ cubic feet; that is, 122 patients for the whole hospital.

These wards have a verandah in front, nine feet in breadth, defended at its outer edge by a wall, two feet and five-sixths in height, from which issue several wooden posts for the roof. The verandah of the side wards is extended backwards to an after area, formed by the various office houses of the hospital, affording a walk of upwards of sixty yards.

This after area is $121\frac{3}{4}$ by 24 feet, and has, on its north side, the surgery eight by twenty feet, and two other rooms for the medical stores, and an office; also, at each extremity, opening from the side verandah, a small ward with one door and window, for the accommodation of any particular cases requiring solitude or separation: opposite are the stewards' store-room and the apprentices' room and the cooking house, and jutting out from the corners of this line, and at the termination of the side verandahs, the privies are placed, each twenty feet by ten. Contiguous to the stewards' store-room, but opening from the outside, without the gate of the after area, is a room for the reception and examination of dead bodies, twenty by ten feet in size; and, at the distance of 210 feet, quite detached, is a small building, used as a female hospital, containing a room thirty feet long, eighteen broad, and fourteen high, with two doors and four windows, capable of accommodating ten women, with 54|| superficial, 756¶ cubic feet each, and two verandah rooms in the south, twelve by eight feet, for the nurse, and midwifery cases, with small adjacent but detached cook house and privy.

$$* 90 \times 24 = 2160 \div 38 = 57.$$

$$+ 2160 \times 16 = 34560 \times (6\frac{6}{6} \div 2) 3\cdot3 \times 2160 = 7129\cdot1 = 4689 \div 38 = 1097.$$

$$\dagger 56 \times 24 = 1404 \div 23 = 61.$$

$$\S 1404 \times 16 = 22464 \times (6\frac{6}{6} \div 2) 3\cdot3 \times 1404 = 4633 = 27097 \div 23 = 1174.$$

$$\| 30 \times 18 = 540 \div 10 = 54.$$

$$\P 540 \times 14 = 7560 \div 756.$$

Two bungalows have been built, one at each side, east and west of the hospital, at the distance of nearly 100 yards, for the accommodation of the apothecary and steward; and, at the distance of nine feet in front of the side wards, are the detached houses or rooms for the hospital-serjeant and the hospital guard. A considerable space of ground around the hospital is enclosed by a prickly-pear hedge, for greater seclusion and protection, and which is kept clean and free from all rank or decaying vegetation.

Public water carriers are employed to bring fresh daily supplies of clear water, for drinking and ablution. One side of the washing room has two tiers of shelves, of solid masonry, for supporting the globular earthen vessels which contain the water, and on the other side is placed an open mouthed barrel, with a tub or two for water, for general purposes. A trough provided with a stop-cock, to allow the easy escape of dirty water, and capacious enough to permit three or four men, at the same time, to wash their hands, &c., is fitted up at a convenient height.

POONA.

a. Station.—POONA is in N. latitude $18^{\circ} 30'$, E. longitude $73^{\circ} 56'$, 90 miles E.S.E. of Bombay, 60 miles from the sea, and 1500 to 1800 feet above its level. The cantonments are about two and a-half miles, in a direct line to the south-east of Kirkce, but five miles by the high road, across the Sungum bridge, with the “Moola” and “Moota Moola” rivers interposed betwixt them. Taking as their boundary the “Moota” river on the north, the Parsee tombs on the south, a rivulet which falls into the “Moota” on the east, and the city of Poona on the west, they cover an area of about nine square miles. The site is nearly surrounded by hills and mountains, of which the more remote are several thousand feet high, the nearer as many hundreds, forming a plain with a raised centre and slightly-sloping sides, of about thirty miles in circumference. The soil, excepting where alluvial near the surface, is seldom more than a few inches deep, and often gravelly, consisting almost entirely of decomposed basalt rock, with a mixture of iron ore, resting on basalt, with steatite and calcareous spar frequently imbedded. Pieces of quartz, of various colours, are scattered over the surface, and, in quarrying and digging wells, fine specimens of crystallized quartz and of zcolite are found. The basalt is of various degrees of hardness; some of it is easily wrought, takes a good polish, and is well adapted for building or sculpture. Where the soil is abundant, and of good quality, or has been made so, a great variety of fruits and flowers of excellent quality and fragrance, tropical as well as European, may be raised. Here, with a little care, may be grown peas, carrots, cauliflower, and other products of the English kitchen gar-

den, with peaches, grapes, oranges, figs, citrons, and other fruits of a more tropical climate. Hedges of myrtle and jessamine are in every compound, with numerous beautiful creepers, of which the passion flower is a very good example. Indeed, the flowers, for variety and beauty, are not to be surpassed.

The climate is that of a country which extends from the limits of Mysore on the south, to the mountains which bound Candeish on the north, being about $7\frac{1}{2}$ degrees in latitude. It has the hilly and woody country which skirts the Ghauts on the west, open naked plains on the east, and enjoys the advantages of both, without the inconvenience of either. The rains are moderate, the quantity being about 25 inches annually, of which 20 fall during the monsoon months. The cold in the winter is pleasant, without being harsh, and the hot season is tempered by regular breezes in the afternoon, from the west, which always ensure cold nights, denied to the country further on the peninsula. The rainy season begins about the middle, or towards the end of June, and closes about the end of October. It is marked by showers, from the west, or southward of west, an almost constant breeze from the same quarter, and cloudy sky, the clouds travelling eastward. There is often a considerable interval betwixt drizzling showers; at other times heavier rains follow in close succession, and last for days together. This season is always preceded, at uncertain intervals, often as early as the end of April, by cloudy weather and violent thunder storms, especially from the east, and especially in the evening. The peals of thunder are sometimes tremendous, the lightning is vivid and frequently destructive, and the rain, accompanied by gusts of wind, falls for an hour or two in twenty-four; hailstones also of a large size occasionally fall. The natives all regard these storms as accidental, and forming no part of the rainy season, and never begin to sow their grain until the astrologer announces that they may do so with safety. July is commonly the wettest month; the rivers attain their greatest height; the sun is obscured; and the air cool and particularly pleasant all day. The thermometer averages from 73° to 74° at sunrise, and 79° to 80° at 3 P.M.; but is often as low as 72° all day. In August the intervals betwixt the showers are long, and there are generally some days entirely fair. The sun occasionally breaks through the clouds, and is hot and scorching. The thermometer averages, at sunrise, about 70° , at 3 P.M. 76° . The rains are again heavy for part of September, the rivers are as often full as in July, and the roads are deep. Towards the end of the month, and during October, the showers become less frequent, but are often very heavy, and in October preceded by thunder. The air, during this period, is muggy, as it also is at the same time in Bombay, and seems to lose its elasticity; the nights are particularly hot and

close, and Europeans generally complain of oppression and langour. In October the thermometer averages about 68° at sunrise, and about 79° at 3 P.M. Excepting short lulls in the morning, and betwixt showers, towards the end of the rains, the wind blows with great constancy from the west and south-west. The cold weather does not set in actually till near the middle of November, and is always preceded by heavy dews at night, and occasionally thick fogs in the morning. December, January, and February are all cool and pleasant months. The weather is however by no means uniform, but seems to alternate with the changes of the moon, one fortnight being very cold, the sky clear, with a dry harsh wind, the thermometer about sunrise at 54° , the lowest about 38° to 40° , and at 3 P.M. about 73° . The wind comes from the eastward during the cold months, chaps the lips, makes the skin rough, and is uncomfortable to the feelings of some people, but is bracing and wholesome; showers of rain fall in that month, especially about Christmas.

The natives date the commencement of the hot season from the new moon, that takes place about the end of February. All March the mornings are generally cool, soft, and pleasant, till 7 or 8 o'clock. The early part of the day is calm. A hot wind sometimes sets in from the northward about 1 to 2 P.M., to be succeeded in the evening by a refreshing breeze from the westward, that blows till near midnight. The thermometer at 8 P.M. stands from 80° to 90° , and at sunrise from 55° to 65° . Storms of thunder, rain, and sometimes hail, are not unfrequent at the equinox. April is perhaps the hottest month in the year. The air, however, keeps dry, elastic, and is never oppressive to the feelings. The hot land winds, from the north and north-west, blow pretty constantly during the day; the cool evening breeze, from the west, is as regular. A wind occasionally sets in for a few days at a time during the hot months, from the southward, which is invariably cool, rather moist, and particularly pleasant. This may be accounted for, probably, from its blowing in the first instance over a great extent of sea, and afterwards over a woody and mountainous track of country, that is not likely to rob it of much of its cold and moisture. The average state of the thermometer at 3 P.M. in the shade is about 90° (in the open air 108°), and at sunrise about 68° . Thunder storms are common during this month.

The weather in May is irregular. If the south winds prevail, and the thunder storms are sufficiently frequent and heavy to soak the ground, it is generally pleasant. If otherwise, the air is often hot and oppressive, particularly at nights, which now have not the sea breeze with any regularity. The thermometer stands this month much higher in the morning and at night than in

April, being frequently 73° or 74° at sunrise, but it is much the same at mid-day. June is an unpleasant month till the rains have fairly set in. After the thunder storms, which occasionally cease about the end of May, strong winds, amounting to a gale, set in from the westward, and blow constantly, from 9 to 10 o'clock in the forenoon, till 8 or 9 in the evening. The natives have a notion that the rains are more or less abundant according to the violence or continuance of this wind, and probably not without foundation, as it is constantly wafting the clouds, loaded with moisture, from the sea to the eastward. The thermometer at sunrise this month was about 75° ; at 3 P.M., about 82° .

At the close of the rainy season and beginning of the cold weather, the natives are subject to attacks of fever; but these are seldom frequent, generally put on an intermittent type, and may be chiefly owing to vicissitudes of temperature, which begin to take place betwixt the cold mornings and heat of the day. These, however, in the form of a tertian or quartan, occasionally defy all their remedies, and terminate in enlargement of the liver and spleen, followed by dropsy. At the commencement of, and during the rainy season, the prevailing complaints are those of the bowels, which are much dreaded, and seem to arise from insufficient clothing, and the abuse of green pot herbs and fruits; at this time old people and children are especially the sufferers. Rheumatism occurs frequently, but not more so than might be expected among people so ill clothed and so fond of dabbling in water, in a climate subject to considerable transitions of temperature. The women suffer most from these complaints, owing to a preposterous custom which prevails at childbirth, when they are shut up in a close hole, with light and air carefully excluded, a lamp, and generally a charcoal fire burning in it, the patient being at the same time plied with stimulating food. This occasionally excites fatal fever, and when the poor victim escapes with life, she often labours under incurable rheumatism.

The women are often mothers at too early an age. Their incessant toil, generally out of doors, diminishes and deteriorates the natural food of their infants, and, to keep the little sufferers quiet, they are dosed with opium. Hence not half the offspring of cultivators of the soil are supposed to reach the age of puberty. Enlargement and obstructions of the liver, spleen, and especially of the mesenteric glands, indicated by protuberant abdomen, diarrhoea, and wasting of the limbs, are the diseases which more immediately terminate their existence. Children are subject to the epidemics of Europe. Measles is here, from the milder temperature, a less formidable disease, when treated with due care and attention. Mental alienation is frequent among the natives of Poona, and venereal complaints very common among the lower

orders. Oxen, cows, buffaloes, goats, sheep, camels, hogs, horses, ponies, and asses, are the domestic animals of Poona. Beef, mutton, and poultry are of good quality, and moderate in price.

In the Poona cantonments are barracks for two Queen's regiments,—the left flank, occupied by the 83d; and the right flank or Ghorpoorie barracks, occupied by the 64th Regiment.

b. Left Flank Barracks.—The left flank barracks are disposed in four parallel lines running from north to south, facing the east, presenting a front of 1002 and a depth of 312 feet. The first and second lines consist each of eight pendals; the third on each flank, of four. In the centre of, and a little beyond this line, are the serjeant-major's and quarter-master serjeant's houses and store-room. The fourth line is formed by the eanteen on one flank, the library and schoolroom on the other, and the cook-houses and serjeant-armourer's shop in the centre. They are divided into right and left wings by a cross street eighty feet wide. The width of the streets betwixt the lines is sixty feet, and the interval betwixt two of the same line, twenty-one feet six. The walls are externally of burnt, internally of unburnt brick, cemented with mud and pointed with lime; the roofs are thatched, and the floors of clay and cowdung, raised two feet. Of each barrack, the outside length is 93 feet 8, the breadth 28 feet; their size internally, 88 feet by 24. The walls are 11 feet high, the ridge pole 19 feet 6. Each is intended for forty men, and every man allowed $52\frac{3}{4}$ * superficial, and $805\frac{1}{2}$ † cubic feet. In the twenty barrack rooms, therefore, may be accommodated 800 men.

The pendals of different rows are not chequered, but directly behind each other. They have verandahs, on the south and west aspect, only 7 feet 4 broad, 10 feet 6 high next the wall, 7 feet 10 under the eave, with a greatly-too-small apartment for ablution at one end; and an uncovered enclosed urinary, not in the verandah, at the opposite end of the pendals. The water used after ablution passes through the end wall to a covered cesspool close under it; the urine from a raised slightly concave stone which first receives it, to a large open earthen jar. The cesspool, as well as the urine jar, is emptied by natives once or oftener a-day, and their contents carried to some distance; but the urinaries at all times, and the cesspools very often, are highly offensive.

In every pendal are sixteen windows and four doors; the latter 7 feet by 4, and the former $5\frac{1}{2}$ by $3\frac{1}{2}$ feet in size. The windows are unglazed, the shutters in three sashes, one opening upwards and outwards, two laterally and inwards. The bedsteads are formed of three planks, 6 feet 4 long, $2\frac{1}{2}$ wide, and 20 inches

* $88 \times 24 = 2112 \div 40 = 52\frac{3}{4}$.

† $2112 \times 11 = 23232 \times (8 \text{ feet } 6 \div 2 =) 4 \text{ feet } 3 \times 2112 = 8968 = 32200 \div 40 = 805$.

high, supported by tressels; the articles of bedding are, a hair paillas, a hair pillow, with two covers, a pair of blankets, two cotton shirts, and a rug. There are tables and benches for messing in the middle of the room. Betwixt the third and fourth ranges of pendals, on each flank, is one privy for men, and another for women. The soil is carried from them early every morning to a neighbouring ravine, and much attention paid to their cleanliness; yet their exhalations are sometimes very offensive, more particularly in the beginning of the wet season.

In the rear of the flanks are the patcheries, two pieces of ground, 300 feet square, covered with huts, for married men and their families. The detached quarters add much to the respectability and comfort of the married men; but they sometimes furnish occasion for indulgence in spirituous liquors, surreptitiously brought by the women from the bazaars.

A row of stately trees, 125 feet distant, shelters the front barracks and the quarter-guard-house, on their left flank, from the oblique rays of the rising sun. About 600 paces to the south-west of this flank are the prison cells, twelve in number, detached from each other, and arranged in two parallel lines, on a rocky mound, some feet above the level of the barracks, a guard-house, and the provost-serjeant's quarters being betwixt them at one end, the privy a little to the left of their middle, and two brick sentry boxes betwixt them. They are distant from each other, in the same line, 27, and in the two lines, 55 feet. The walls are of brick and lime, two feet thick, and chuppered, that is, protected, excepting on the door side, by double screens of grass in bamboo frames, stretching from top to bottom. Every cell is 9 feet 11 inches square, 12 feet 4 high, has a chunam floor, 18 inches above the foundation, and a horizontal ceiling of timber, perforated by a grated ventilator, 15 inches square, from which the heated air passes to numerous small apertures in the walls under the roof. There are eight ventilation holes, 6 inches square, in the walls, on the level of the floor; a fourth, about a foot in size, well up, and a large double door, the inner half composed of perpendicular open iron bars. Near the cells a new serjeant-armourer's shop has been lately built, and in a hollow on the opposite side is a Roman Catholic chapel for the men.

c. Left Flank Hospital.—The hospital stands on higher ground than the barracks, on their rear, and south-east, at the distance of 462 yards, with the compounds and bungalows of the officers betwixt them; the prison cells about 100 yards to the left. It consists of a centre and two wings, which, with verandahs prolonged behind, enclose two gravelled areas, one opening to the N.N.W. in front, 122 feet square, another opening behind of the same length, but 34 feet broad only; the hospital-serjeant's

quarters and a guard house, with a gateway between them, and side walls from the front of the area. The centre is divided by a passage to the surgery, into two wards, and has a front verandah, shut in below by a wall three feet high; and a rear verandah, enclosed to form five apartments, three in the centre for the surgery, writing office, and apprentices' room, two at the ends for clothing stores, with two intermediate portions of the verandah open. Each wing has an open outer verandah over its back windows, and two inner verandahs, one enclosed, the other open. All the inner verandahs are 9 feet broad, and the hospital floor is raised 2 feet above the front area, and paved with flagstones. The outer verandahs are $6\frac{1}{2}$ feet wide, on the level of the area, and both covered with gravel over the subjacent rock. The walls are of brick and lime, 2 feet 2 inches thick, the roof double-tiled, with bamboo sheathing underneath. The wards are 24 feet wide, 17 feet 9 high at the sides, 24 feet at the ridge pole. The central are 55 feet 6 long, have two doors and six windows, with a ventilator in the roof, and one in the intermediate passage, and furnish accommodation for 23 patients, at the rate of 58* square, and 1148† cubic feet per man. Each wing is a single ward, and gives accommodation for 50 men, at the rate of 57‡ superficial, and 1138§ cubic feet; the distance between two rows of beds, on different sides, being 11 feet 4, and the average breadth for every bed in the smaller wards, 4 feet 10; in the larger, 4 feet $9\frac{1}{2}$ inches.

The bedsteads are of iron, with iron splint, elastic bottoms, and some provided with an apparatus for raising the head and shoulders. The four wards will accommodate 146 men, including orderlies.

The enclosed side verandah of the wings is prolonged backwards, to form the end verandah of the centre, and covered ways to two privies on the extreme flanks of the back court. It also forms an open verandah, on each side, for the water and ablution of the patients, on the rear side of the back court. Connected together, by a wall and gateway, are the cooking-house on the left,—a medical and a clothing store, on the right. Behind the kitchen, on the opposite side of the back wall, is a very good dead-house.

Sixty paces behind the hospital for the men is another for the treatment of sick women and children. It consists of two principal rooms, having an open verandah in front of each, twenty feet

$$* 55.6 \times 24 = 1332 \div 23 = 58.$$

$$† 1332 \times 17.75 = 23643 + (1332 \times (\frac{6.25}{2} = 3.125 - 1.042 = 2.083)) = 2774 = 26417 \div 23 = 1148.$$

$$‡ 119.5 \times 24 = 2868 \div 50 = 57.$$

$$§ 2868 \times 17.75 = 50907 + (2868 \times 2.083 =) 5974 = 56881 \div 50 = 1138.$$

by eighteen in size, with a small closet attached. Two smaller additional apartments, with a lobby betwixt them, and a matron and assistant-matron's rooms, have been formed by enclosing the back and part of the side verandahs. The female hospital may conveniently accommodate fourteen patients, giving each a space of sixty square feet.

Right Flank or Ghorpoorie Barracks.—The right flank or Ghorpoorie are a mile and a-half to the north-east of the left flank barracks, the lines of the horse artillery, officers and men, being interposed betwixt them. They are twenty-four in number, twelve of which, with all the accessory buildings, were completed in 1846, and so much resemble those of the left flank, that a separate description of them may be dispensed with. The remaining twelve have been completed this year only, and are infinitely superior to the former in size, construction, and comfort. Unlike the left flank barracks, the newer as well as the more ancient, at Ghorpoorie, have the lines into which they are distributed chequered, the pendals of the second line being behind the interval that separates two of the first, and so on: and this requires a greater interval betwixt the pendals of every line, and improves the ventilation of the whole. The pendals, independently of the attached buildings, occupy four lines, there being five in the front, seven in the third, and six in the second and fourth lines. The new and improved barracks constitute the first and second, and contribute one pendal to the third line. Every pendal covers a surface of 154 feet 8 inches, by 53 feet 9 inches; the distance betwixt two of the same line is 122 feet, and the interval betwixt two lines 69 feet. The foundation and plinth are of rough stone and lime; the walls of burnt brick, two feet two inches thick, plastered within, and pointed with lime outside; the floors are paved with cut stone, and one foot higher than the verandahs, which are from one to two feet above the surrounding level; the roofs are double tiled. Every pendal is divided into one principal, and four small rooms, two at each end. The principal room is 100 by 24 feet in length and breadth, the side walls 19 feet, the ridge pole 25 feet high. The partitions, separating the small rooms, are $17\frac{1}{2}$ feet high. A verandah, twelve feet broad and ten feet high in front, surrounds the building, excepting at the four corners, which are occupied, on each side, by a washing-house at one end, a urinary at the other, leaving the length of the verandah, in front and rear, 127 feet, and, at the ends, 26 feet. The back verandah, facing north-east, is quite open; the front verandah, facing south-west, is enclosed by a wall, two feet two inches high, above which, in its whole length, with exception of two doorways, are, first, a tier of windows, consisting alternately of glazed sashes and moveable Venetian shutters, the former opening outwardly;

second, a tier of immoveable panes of glass; and, last, immediately under the verandah roof, a tier of moveable Venetians, fifteen inches high. This apparatus is interrupted only by two open doorways, nine feet five inches wide, reaching to the roof. The washing-rooms and urinaries are each eleven and a-half feet square. They have one door opening into the verandah, but no windows, the two outer walls being perforated in lieu of them by a large square group of cylindrical holes, originally formed in soft chunam, around tile models, three inches in diameter. One group consists of seven rows, with twenty-two holes in each, and occupies more than half the breadth, and nearly one-third the height, of the wall in which it is placed. In each washing-house is one raised platform of masonry, and another higher, narrower, and occupying one side of the room, for wash-hand basins. There is a slight slope in the floor to the end wall, which is perforated for the passage of the waste water to a covered cess-pool, paved and lined with stone ten feet on the outside. In the urinaries, a raised superficial trough, from which the urine passes through the wall to a similar cesspool, takes the place of the basin-stand. The contents of the cesspools are removed by coolies daily. In each washing-house are two water casks, and five wash-hand tin basins for ablution, with two large earthen jars for water to be drank.

On each side of the large room are two doors and nine windows, with four additional doors opening into the end rooms. The windows are unglazed, but have three shutters, one above opening upwards and outwards, equal in size to the two below, which open laterally and inwards. Five openings, seven inches square, ribbed with iron, pass from each side verandah under the floor, and in the middle of the large room are three, of each small room, one stone, pierced with nine small air holes. In the roof of each pendal are three large covered ventilators, and the side walls are pierced, two feet from their top, by nine double rows of ventilation holes, each about two inches in diameter, opening externally betwixt the main and verandah roofs. This room is 100 feet long, and 24 feet broad, the side walls 19 feet, the ridge poll 25 feet high, and it is appropriated to the use of forty-two men, so that each man has 57* superficial and about 1200† cubic feet. The four corner rooms will accommodate four more, making forty-six for one, and 552 men for all the new pendals. There are at present twenty beds in each side of the room, with an interval of eleven feet betwixt them, and two at one end; each bed is allowed a breadth of five feet. Betwixt the doors and windows are wooden racks and pegs, for accoutrements, with a double arm rack betwixt every two beds. In addition to these, which are common to the other barracks, are

* $100 \times 24 = 2400 \div 42 = 57.1$.

† $2400 \times 19 = 45600 \times (2400 \times \frac{5}{2} = 3 \text{ -- } 1 = 2) = 4800 = 50400 \div 42 = 1200$.

here, suspended from the roof, by iron rods seven feet from the walls, on each side, and seven feet from the floor, the whole length of the room, three iron shelves, one foot eight inches broad, consisting of four flat longitudinal iron splints, about an inch broad, rivetted together and strengthened by cross splints two feet apart. On these shelves, which have a light and elegant appearance, and encroach very little on the respirable atmosphere of the room, the men's knapsacks and more heavy accoutrements are deposited.

The older pendals completed in 1846, form the third and fourth lines, six in each. At one end are two serjeants' rooms, at another, in the verandah corner, a place for both ablution and the discharge of urine, eleven feet six inches by six feet two only in size. Length of the principal room ninety-six feet ten, breadth twenty-three feet ten, height of the side wall thirteen, of the ridge pole nineteen feet. Sixteen windows, seven on each side, two in one end, shuttered on the east as well as shuttered on the west side, intended for forty men. Thirty-nine beds in the one more particularly examined. This gives 59* square and 890† cubic feet to every man. If these twelve pendals, then, accommodate each forty men, the whole will accommodate 480, and the new and old Ghorpooric barracks 1032 men, besides, probably sixty more in the patcheries, when put in repair. The old pendals are I believe condemned, and so lately as the 30th July, a committee was ordered to assemble, for the purpose of selecting a site for proper barracks for a European regiment of infantry, 1000 strong.

One hundred and sixty paces from the north-east extremity of the third line of pendals are two streets of patcheries, comprising twenty huts each, for the accommodation together of forty married men. The street betwixt them is forty-five feet wide. Each hut has one door, one window, mud walls and floor, fourteen feet by eleven feet nine in size; roof thatched.

In addition to the four lines of pendals, are a fifth line, with two privies at each extremity, and betwixt them the schoolroom, serjeant-armourer's shop and house, a cooking house for each wing, the quarter-master-serjeant's store, the canteen and serjeants' mess room, a sixth line for six staff-serjeants' houses, one of them used as the orderly room, and, on the extreme left, a second patchery, consisting of two rows of alternate buildings, each divided into two rooms, for the accommodation of twenty families, but at present unoccupied, and under repair. There are a left and a right wing guard near the patcheries, on either side, and the quarter guard is near the centre of the front pendals. There are no fewer than 400 soldiers of the 64th Regiment now receiv-

* 96 ft. 10 in. \times 23 ft. 10 in. = 2315 \div 39 = 59.

† 2315 \times 13 = 30095 + ($\frac{6}{2}$ = 3 — 1 = 2 \times 2315 =) 4630 = 34725 \div 39 = 890.

ing instruction in reading, writing, and arithmetic, at the regimental school. They are divided into five classes, every class attending for one hour daily. The East India Company very liberally supply European Troops embarking for India, with books for perusal during the voyage. The 64th head quarter division received, for this purpose, 218 separate works, comprising 328 volumes, and were allowed, on its arrival, to retain possession of them as the foundation of a regimental library.

Prison Cells.—Behind the hospital, to the east of the barraeks, are twelve prison cells, in three chequered lines, distant in the same line 11, and in different lines 15 paces, raised two feet from the ground, each being inside 10 feet square, 11 feet high at the sides, and 11 feet 7 inches at the ends.

Near these, and near the right flank pendals and patchery, is the regimental bazaar, of one street, with shops on both sides.

Ghorpoorie Hospital.—In general plan and construction, the Ghorpoorie resembles the left flank hospital. Its front area is 157 by 101 feet in length and breadth, and advances 23 feet 10 beyond the wing, by side walls 7 feet high. The back court is of the same length, and 40 feet broad. The two central and two side wards are all of one size, 74 feet 4 long, 24 feet 10 broad, 15 feet 10 at the sides, and about 22 at the ridge poles, the whole being capable of accommodating 120 sick and orderlies, or 30 in each ward, at the rate of 62* square, and 1112† cubic feet, with nearly 5 feet for the breadth of each bed.

About 250 feet, in an oblique direction from the men's, is the female hospital, of which the principal apartment is 44 feet 9 by 16 feet 9 in length and breadth, and 13 feet 9 high to the canvass ceiling. It has a verandah in front, 66 feet 7 inches long, 8 feet 9 wide, and opens behind into two small rooms, with a lobby betwixt them, formed from the back verandah. There is an apartment, on the outer side of each small room, for the matron and her assistant. In the large room is accommodation for 12 sick, at the rate of 62½ ‡ square, and 859 § cubic feet each, and in the small room for two more, making 14 in all.

BOMBAY TO DEESA.

DEESA is 454 miles to the north, and a little to the west of Bombay, 300 by water to Cambay, 151 thence by land. Disappointed in a steamer that had been advertised to leave Bombay

$$\begin{aligned}
 &^* 74 \text{ " } 4 \times 24 \text{ " } 10 = 1863 \div 30 = 62. \\
 &+ 1863 \times 15 \text{ " } 10 = 29497 + \left(\frac{6 \text{ " } 2}{2}\right) = 3 \text{ " } 1 - 1 = 2 \text{ " } 1 \times 1863 = 3881 \\
 &= 33378 \div 30 = 1112. \\
 &^{\dagger} 44 \text{ " } 9 \times 16 \text{ " } 9 = 750 \div 12 = 62\frac{1}{2}. \\
 &§ 750 \times 13 \text{ " } 9 = 10312 \div 12 = 859.
 \end{aligned}$$

for Surat, on the 13th February, I engaged a pattemar to take me direct to Cambay, and, sailing the same evening, got aground at ebb tide, 6 miles from that place; on the 18th, sailed again, late at night, and was carried on shore in a palanquin, two miles through the mud, next morning. Cambay is a convalescent station for men and officers of the Company's service, in medical charge of a remarkably intelligent and well educated native apothecary, and the old British Factory is fitted up as a travellers' bungalow. In three covered bullock carts, with a captain of H.M. 86th Regiment, three servants betwixt us, and an escort of two suwars or outriders, armed with lance, sword, and pistols, but without a particle of ammunition, I left Cambay on the 20th, at half-past 5 P.M., and reached Sejootree, the first halting place, distant twenty miles, at 3 next morning, in nine hours and a half,—two miles an hour being the average rate of bullock speed in this district, where road-making is unknown. The next halting place was Kaira, formerly the station for Queen's cavalry in this Presidency, but so destructive to the health of the 4th Light Dragoons, during four years they were stationed there, that in 1826 it was exchanged for Kirkee. A native corps, now stationed there, is notwithstanding very healthy. At Ahmedabad, the third halting place, I left behind my travelling companion, dismissed my escort, who had not stipulated to travel further, obtained from the civil authorities three new suwars, and, in a single cart, drawn by four instead of two bullocks, resumed my journey, and arrived in Deesa on the 25th. The country through which I passed was in some places ornamented with large and fine trees, and is said to be green, flowery, and fertile in the time of the monsoon, but wore then, throughout, an arid and unproductive appearance.

DEESA.

a. Station.—Deesa is in N. latitude $24^{\circ} 16'$, E. longitude $72^{\circ} 2'$, less than 200 feet above the level of the sea, and within fifty miles of it, on the west. The cantonments occupy a plain of a somewhat square form, about six miles in circumference, and are bounded on the north-west by an extensive sandy desert, separating them from Scinde; on the east and north-east, by the provinces of Malwa and Ajmeer, in which are lofty ridges of hills, and among other mountains, Aboo, distinguished for the magnificence, the variety, and the richness of the sculptures of its Jain temples, and lately frequented, in the hot months, as a convalescent station, on the south and west, by the level and fertile plains of Guzerat. Deesa is not many miles to the east of the Runn of Cutch, which is, in the hot season, a dry expanse of salt and mud, but, by the fierce play of the monsoon winds on the waters of the

gulf, becomes an inland lake for four or five months of the year, and long before the first rains fall: the intense heat of Deesa, in May and June, is modified, not only by the direct influence of the strong westerly winds which then blow, but by their tendency to fill the Runn with water. The hot, rainy, and cold seasons occupy each, at Deesa, about four months in the year. The hot months extend from the middle of March to the beginning or middle of July, when the rains are fairly set in, and cool the surrounding country. In April the winds are very hot, and veer to N.W. during the day, and back to N. or N.E. at nights, which continue pretty cool throughout. Towards the end of May, they blow westerly or S.W. from the ocean, and consequently lose the dry scorching effect peculiar to winds from the desert. Still the mean heat of the twenty-four hours, during the year, acquires its maximum in May, being, in a table given by Dr Thom, $92^{\circ}.08$, with a range from 79° at sunrise to 109° at 3 P.M. In June the winds are steady from the S.W. and W., and gradually get charged with moisture, which tempers the air, but renders it muggy and oppressive. About the end of this month, or the beginning of July, clouds, thunder, lightning, with occasional heavy falls of rain, usher in the monsoon.

The rains fall regularly at Deesa about four months. During the rest of the year, an occasional thunder cloud may sweep across the cantonment, and pour out a copious shower. The moisture of the atmosphere increases from January, and acquires its greatest degree in July, the thermometrical range of dryness being 19° in the former, and only 8° in the latter. During last year, however, there was much less humidity of the atmosphere during the monsoon than usual.

In the time of the monsoon, the air at Deesa is well charged with vapour, but much less is deposited in the form of rain, and the ground is less moist than at Bombay. The sandy nature of the soil, too, allows rain to filter through it a few hours after it has fallen.

The average annual fall of rain at Deesa is said to be only about fifteen inches, though last year it was sixteen inches and three-tenths, while in Bombay it exceeds 60° .

There are hot winds for a day or two in October and November, but the nights are cool, and the mean heat of the twenty-four hours rapidly declines. The cold season usually commences in November, by the winds veering back from S.W. by N.W. and N. to N.E. In December and January, the nights are often piercingly cold, and, from the dryness of the air, and rapid evaporation from the surface of the body, the feeling of cold is much greater than the thermometer would indicate. At this season, there are occasionally westerly and S.W. winds, which last for a day or two, and are comparatively humid and bland, but their

duration is so short, and the transitions so sudden, that they rather cause than avert sickness.

The hottest, and very nearly the driest months of last year, were April and May, during which the admissions were less than at any equal time of the twelve months. The greatest amount and most severe forms of sickness were met with in June, July, August, September, and October, when the air is more or less charged with aqueous vapour. In June and July, the two most humid, and also very hot months, more than one-fourth of the annual admissions took place, and more than twice as many as during the two preceding months; the increase being from fever, of which 200 cases were admitted. December and January, the coldest and driest months of the year, were remarkable for pulmonary and bronchitic affections, three-fifths of the whole of the yearly admissions for them having occurred in these two months.

In April, May, and the beginning of June, the temperature at mid-day ranges from 90° to 108° in the shade, and in the afternoon it reaches 98° , in the best cooled barracks. At 10 at night, even, the thermometer is often found at 92° and 94° of heat, which, with a still atmosphere, are almost intolerable. The dry and evaporating quality of the air, at such times, alone enables the body to get rid of the superabundant heat.

The site of the European barracks is at the north-east side of the square forming the cantonment, more elevated than the rest of the lines, with a gentle slope towards the bed of the river Bunass on the north-west. The central part of the cantonment is an open esplanade, three-quarters of a mile long, and half a mile broad; in three sides of which the lines of the several corps comprising the force at Deesa are placed, the fourth side being open to the south-east. For several miles beyond the boundary of the cantonment the country is either cultivated or destitute of all vegetation except here and there a loose, scrubby, half-dried bush. The river Bunass is about a mile from its northern border, and approaches the cantonment on the north-west. It is only during July, August, and a few months later, that there is any body of water flowing along this deeply-furrowed channel; and, in the winter and hot season, a few pools of water and a small trickling stream along the sandy bed are the only signs of a river. From the sandy plain, through which the Bunass travels, and the sudden falls of rain filling the hollow, great havoc is often caused in its banks in the space of a few hours; and the appearances left show that a vast volume of water occasionally moves along the bed of the river, in the monsoon.

In Deesa water is found everywhere near the surface; wells are very numerous, and one might be made in every garden: to procure a permanent supply of good water, they are required to be

sunk from eighty to ninety feet deep. The temperature of the water at this depth is 86° all the year round. In digging them, soil and sand, with occasionally marine shells from uncertain depth, are the only materials found.

The supply of vegetables for the troops at Deesa is precarious and uncertain, in the dry season; the means of personal ablution at all times very deficient. In June 1848 a local committee recommended that two large covered tanks, fifty feet long, twenty broad, and five deep, should be constructed, as near the European barracks as possible, one for each wing, and supplied with water from two large wells by bullocks kept at work all day long; the water to enter at the bottom, and the excess flow over at the top. On the 13th July Dr Thom writes: "Never was bathing more required than here. We have had no monsoon yet; the few heavy showers that have fallen have rendered the air muggy, and the heat produces the feeling of a steam bath. Yesterday the thermometer was 104° in my verandah, and the dew point 79° ." The stillness of the air, loaded with vapour, renders the heat intolerable; and it is only they who live in such a climate that can appreciate the refreshing influence of a cold bath, in allaying for a few hours the fiery heat of the skin. On the 25th March there were only thirty men in hospital from a corps of 1000 strong, and half of them venereal cases. On the 2d May the number was reduced to nineteen, with four convalescents out of hospital. Without any more obvious cause than increased moisture and heat of atmosphere, the sick had increased, on the 13th July, to 110, chiefly of febrile cases; and, though the form was neither very severe nor fatal, from ten to fifteen cases were admitted daily. The bathing tanks are not yet constructed, nor is it known when they may be.* They might supply with water a vegetable and fruit garden, for the use of the Queen's troops, if they were once finished.

b. European Barracks.—The barracks of the 86th Regiment are in two lines, facing the esplanade or parade-ground, and southwest the quarter from whence the winds blow in the monsoon season. Behind these a third row of buildings is formed by the orderly-room, school-room, canteen, cooking-houses, &c., on one flank, and solitary cells and guard-room on the other. Still farther back are the compounds and bungalows of officers, in three rows, parallel to those of the men's quarters. In rear of all, and nearly behind the centre of these last, is the hospital. The barracks and hospital are screened from the violence of the solar heat striking against their western sides, in the afternoon, by rows of

* This was written in August 1849. The works and tanks have been since completed.

fine Ncem trees (*Melia azadirachta*), which are evergreen even in this arid region; and, from the thickness of their foliage, in the hot months they form a shade of some 80 or 100 feet over the front of the buildings, and afford a protection to men on duty passing through the lines.

The buildings are what are called Puckka, that is, constructed with lime and burnt bricks, and covered with two layers of tiles. There are ten barrack-rooms in the two lines; eight of which, with the hospital, were built in 1829-30. They are 177 feet long, twenty-four broad, and have walls fifteen feet high; with six doors and twenty-four windows in each. The doors are ten feet by four, and the windows six feet by four. Each has a good verandah, nine feet broad all round; the ends are partly enclosed as small rooms for non-commissioned officers, and the rear portions of these are made into washing-rooms for the men, of nineteen feet long and eight broad. The other two Puckka barracks were built in 1842, and are each 204 feet long, twenty-four broad, and fifteen feet six inches high; with twenty-eight windows and eight doors, and surrounded by verandahs similar to the others. The doors of these are seven feet by three feet six, and windows five feet by three.

In addition to the ten regular barrack rooms, two temporary constructions of 124 feet long, by twenty-four broad, and thirteen high, have been found necessary to supply ample accommodation for the present strength of a European regiment, in the Bombay Presidency. These were built in 1846, and consist of frame work, with the interstices filled up with bamboos, and plastered over with mud; but being covered with thatch, and surrounded, like the regular buildings, with a good verandah, they are quite as cool as the latter; in fact, being in front of all, and receiving the unbroken force of the S.W. winds, they are preferred by the men to the second line of Puckka rooms. They are ventilated by twenty-two windows, and six doors in each, of the same size as in the two long rooms. The accommodation in these twelve barrack rooms is ample for the regiment. The barracks are supplied with tatties in the hot months, and it is proposed to have punkahs, to be pulled during twelve hours daily, such being much wanted during the still, muggy, and oppressive state of the atmosphere in June, just before the rains begin to fall.

Patcheries.—The patcheries, for married soldiers, are ninety-seven paces to the left of the barracks, and distributed in four parallel lines, with streets thirty-five paces wide betwixt them. In every line are eighteen pendals, seventy-two in all. The pendals are twenty-four feet nine long, twelve feet ten broad, and divided into two rooms, twelve feet ten by ten feet four in size. The walls of brick one foot thick, floors of clay, roofs single tiled.

They have each two doors and three windows. One family resides in every room, or 144 married men in the whole. At the entrance of every room is a small cooking verandah.

Canteen.—Good draught English porter is provided for the different canteens, by the Commissariat department, and sold to the men at three annas or fourpence halfpenny a quart. No man is allowed to drink more than three quarts of porter, or in its place three drams of arrack or of wine, in the twenty-four hours. In the month of January last, the average strength of the non-commissioned officers and privates of the 86th Regiment, out of hospital at Deesa, was 1060, and the consumption in the canteen, serjeants' mess included, was:—

			Price per dram.
Arrack,	1248 gallons,	1 anna or $\frac{1}{2}$ d.	
Brandy, .	109 bottles,	2 „	
Rum,	236 „	$1\frac{1}{4}$ „	
Gin,	47 „	$1\frac{1}{2}$ „	
Port Wine,	50 „	$1\frac{3}{4}$ „	
Sherry,	43 „	$1\frac{1}{2}$ „	
Bottled Porter,	669 „	5 „	per bottle.
„ Beer,	824 „	4 „	„

Draught Porter, 9 hogsheads or 45 gallons, 3 annas per quart.

The price paid for the whole of the articles consumed that month was 4276 rupees, making every man's average monthly canteen expenses 4 rupees $6\frac{1}{2}$ pice, *i. e.* betwixt threepence halfpenny and fourpence a day.

c. Hospital.—The hospital is built of brick and lime, and consists of a long centre, having a south-western aspect, and two wings projecting behind. A passage through the centre divides it into two equal parts, each containing two large and one small ward, six in all, to which the left wing adds a seventh. The four large wards are fifty-five feet long, twenty-five wide, and fifteen and a-half high in the side walls, the partition between them being two feet lower; and have four doors and eight windows, the former eight feet by four, and the latter six feet by three and a-half, in size. Each window has two pairs of glazed sashes, opening inwards, and moveable Venetian shutters, opening outwards. The smaller end wards are twenty-five feet by twenty-four in size, and have three doors and two windows. In the left back wing is a seventh ward, forty-nine feet long, twelve broad, and fifteen high, with two doors and eight windows. Each of the four large wards has ample accommodation for eighteen, of the smaller for nine, and of the wing ward for nine patients, making 100 in all. In each of the principal wards is a roof ventilator. The verandah, in front and rear, is nine feet wide, and paved with chunam and

gravel, a much better material than the red, soft, crumbling, brick flags, which form the floor of the wards themselves. The front verandah, facing the south-west, is enclosed by a wall ten feet high, with window openings and Venetian shutters, corresponding in number and arrangement to the windows of the inner wall. The back verandah is open, above a parapet wall three feet four inches high.

Behind the narrow ward in the left wing, are the surgery, medical, and provision store-rooms, and the cook-house, and, beyond the wing, the apothecary's house, consisting of four apartments, the two smaller taken from the verandah, with corresponding offices. The right wing is formed by the steward's stores, the hospital-serjeant's room, and the dead-house, and, beyond it, the steward's house.

The privy is a detached building betwixt the wings, joined to the back verandah by a covered passage ninety-six feet long. The wards are supplied with tatties and punkahs for use in the hot and rainy months, and with stoves for the severe cold occasionally experienced in January,—a month in which ice has been seen on the pools of Deesa.

Attached to the back verandah are four small rooms for ablution and the employment of the shower bath. The hospital is supplied with good water from a well in front, worked by two bullocks. It is shaded on every side by Ncem trees, and surrounded by a thick hedge, 690 feet in length, and 570 feet in breadth.

The women's hospital is twelve paces to the left of the men's, and has two wards for the accommodation of ten patients, with the back verandah enclosed for two additional sick, and a covered way leading to a privy, twenty paces behind it.

MOUNT ABOO.

MOUNT ABOO, in the province of Ajmeer, is in north latitude $27^{\circ} 24'$, east longitude $23^{\circ} 25'$, and about fifty miles north-east from Deesa. The latest measurement by boiling water makes its height above the level of the sea 4120 feet, and its estimated circumference is forty-five miles. It is surrounded by impenetrable jungle, the habitation of wild animals, and tribes of Bheels equally wild. In April, May, and June the climate is cool and agreeable, while in Deesa it is excessively hot. Hence, in these months, officers who can be spared from duty, with their families, get leave to reside at Aboo. There are twelve native hamlets scattered over it, and the inhabitants are distinguished by the name of Rahtis; about twenty bungalows have, in addition, sprung up within a few years,—fifteen the property of residents in Deesa,

five, of political departments of other stations. A detachment of sickly and weakly men, selected from the Queen's regiment at Deesa, has been recently sent thither annually, with a view to their more speedy restoration to health and strength. The access to Mount Aboo is difficult; its base is four days' march from Deesa, and the road thence to the barracks on the top is steep, ragged, impassable excepting by daylight, and requires four hours for its laborious ascent. Weakly men, therefore, cannot accomplish this, but must be carried by four coolies, with two more for a relief, in light vehicles, called by the natives *Indra Vahana*, or celestial cars, which consist of a couple of long bamboo poles, with a small seat, one foot square, suspended betwixt them. The bearers, again, are well aware that they neither are British subjects nor can be compelled to accept employment; and every village holiday or festival is considered by them an excuse for declining employment, or demanding extra and exorbitant hire.

The principal rock of Aboo is said to be gneiss, with very variable proportions of felspar and quartz, being sometimes equally distributed, while in other examples, irregular crystals of rose coloured felspar, a full inch long, are interspersed through the predominating quartz. In different parts, massive veins of blue compact slate may be observed, and in the beds of rivers fragments of marble of various hues and slate of every description. The vegetation is rich and various, combining the flowers and fruits of a European and tropical climate. Besides innumerable other plants may here be seen the bamboo, the golden champa loaded with blossoms, the prickly pear, the brab tree, date, pomegranate, mango, apricot, nectarine,—though to what perfection their fruits attain I have not been informed. The Niki Talao, a beautiful lake, about 400 yards in length, surrounded by rocks, wooded to the margin, and studded with a few green islets, is one of the first objects that offer us a grateful compensation for the difficulties of the ascent. Of the wonderful Jain temples, I had leisure to visit only those of Dailwarra, comprising the two dedicated to Vrishubdeva and Parswanta'h, the first of which Colonel Todd describes as "beyond controversy the most superb of all the temples of India." To attempt anything like a description of either would be absurd, so innumerable, and so minutely and richly sculptured are the splendid assemblage of shrines, colonnades, niches, groups, and figures, all most elaborately chiselled out in the purest white marble.

Barracks.—The site of the barracks is ill chosen; they occupy a small confined valley, and enjoy neither the agreeable and diversified scenery in their immediate vicinity, nor the refreshing western breeze in the hot season, this being obstructed by a hill

called Monte Video, in the front, at the same time that they are exposed to the reflected and radiated heat from the bare rocky sides of another hill on the north-east.

The barracks are two in number, with a western aspect, and an interval of twenty-four paces betwixt them. The walls are of wattle and mud, about four inches thick, whitewashed on both sides; the floor of clay, the roof thatched. The inside dimensions of each are a hundred feet long, twenty-one broad, fourteen high to the top of the wall, about twenty-four to the ridge pole. They have four doors and eighteen windows of split bamboo interwoven in teakwood frames, but no glass; side verandahs, eight feet ten broad, and chuppered ends. In the four corners are serjeants' rooms, eight feet square, taken from the verandahs. The two barracks are intended for one hundred men, but furnish proper accommodation for eighty only, and this gives $52\frac{1}{2}^*$ square, and about 919† cubic feet to each. The cooking house and privy are respectively fifty-three and seventy paces behind the barracks.

At some distance behind the barracks, are twenty-five grass huts in two rows, for native followers, each of them eleven feet long, nine feet three broad, six feet six high in the sides, eleven feet six in the centre. They have each one door, but no windows.

Good water is procured in abundance at all seasons, from three springs in the neighbourhood. The west angle of the lake, being the least open to observation, is generally resorted to as a bathing place.

Hospital.—Though near the barracks, the site of the hospital is better selected, being a hillock or rock, a few hundred paces behind them, and about forty feet above their level, which commands a good and picturesque view, including the lake, and is open to the prevailing wind. The hospital consists of two pendals within six paces of each other, forms two sides of a square, facing respectively the south-west and south-east. They have verandahs at the sides and one end. In the contiguous ends, which want verandahs, are two small apartments. Abstracting these, each building forms a single ward, seventy feet long, twenty-two wide, with a ceiling of canvas thirteen feet four inches high. In each ward are four doors and twelve windows. The walls, doors, and window shutters are of the same materials and construction as those of the barracks. The window openings are three feet from the floor, and five feet by three in size. The verandahs are eight feet nine wide. The clay floors are raised

$$* 100 \times 21 = 2100 \div 40 = 525.$$

$$\div 2100 \times 14 = 29400 + (1\frac{1}{2} = 5 \div 11\frac{1}{2}, 3\frac{1}{2} \times 2100 =) 7350 = 36750 \div 40 = 919.$$

two feet. The two end rooms are nineteen feet long, eight feet five inches broad. The two large wards furnish accommodation for forty patients, at the rate of 77* square and 1026† cubic feet. The latrine is sixteen feet distant from the wards, and the cooking-house nineteen paces behind one of them.

The barracks and hospital were completed in 1848.

KURRACHEE.

a. Station.—KURRACHEE is in north latitude $24^{\circ} 53'$, east longitude $67^{\circ} 17'$, about 450 miles by water, and 770 by land, north and west from Bombay. The town is built on a stratum of tertiary rock, at the head of a shallow creek, three miles from the sea, and twenty or thirty feet above its level. The houses and a surrounding wall are of mud; the streets narrow, dirty, and ill kept; the inhabitants estimated at 12,000. Keel'd boats of large size cannot come within a mile and a half of the town. Cargo is landed in flat-bottomed boats, and at high water only; and steamers are prevented from approaching the harbour by a sand bank or bar, which renders the disembarkation of troops tedious and difficult.

The country around Kurrachee has the appearance of a desert. It is bleak, bare, and arid, being scarcely ever moistened by rain, and has no other vegetable covering than here and there a few stunted and sickly shrubs. The flat, sandy, shingly plains consist chiefly of rolled stones cemented into a sort of conglomerate, rising in some places into low hummocks, and are almost entirely without vegetable covering; a few dwarfish and sapless shrubs or pining cacti, thinly scattered over the surface, give the only indications of vegetable life. Low, distant hills, which skirt the horizon, present the same arid, dreary, and barren aspect. Good water is, notwithstanding, to be obtained at the depth of from twenty to twenty-five feet; and by sinking wells, and raising the water by Persian wheels, a very large garden has been made and cultivated at the expense of government, and others by individuals, which furnish most satisfactory evidence of the fertility and capabilities of the soil when properly irrigated. Placed on the western shore of India, just beyond the northern tropic, Kurrachee is exposed to the full influence of both the monsoons that prevail on this coast at different seasons of the year,—the one from the north-east and the other from the south-west, each lasting five months, and divided in May and October by about a month of variable winds or hot and calm weather. The continent of Asia having

* $70 \times 22 = 1540 \div 20 = 77$.

† $1540 \times 13\frac{1}{2} = 2053 \div 20 = 1026$.

become colder than the ocean in November, the north-east monsoon, or in fact the trade wind, begins to blow near the Himalaya and Hindoo Coosli mountains, gradually extends to the coast, and thence over the Arabian Sea. It is in full force at Kurrachee in December, January, and February, when the air is exceedingly sharp, clear, and dry, and produces a feeling of elasticity and activity highly conducive to the enjoyment of good health. At this season the dew point is from 20° to 30° below the temperature in the shade; the range betwixt the day and night is very great, equal to 30° or 40° , especially in Upper Scinde; but this variation occurs with great regularity, every twenty-four hours, and those sudden hourly vicissitudes common to some other countries are unknown. As soon as the sun returns from the southern tropic and restores its warmth to the Indian peninsula, the heat of April begins to be tempered by the sea-breeze, which acquires greater strength and permanency, till the middle of May, and then becomes entitled to the name of the south-west monsoon, which blows with great and tempestuous violence along the western coast of India till the beginning of October. The character of this wind is the reverse of the north-east monsoon from the land, being humid, warm, and bland. The climate of Kurrachee is thus rendered more equable; the difference betwixt the heat of the day and night seldom exceeds 10° , while in the opposite season it is never less than 20° , and the dew point is seldom more than 6° or 8° below the ordinary temperature in the shade. The sky is cloudy, and subdues the summer heat of July and August, which is often found to be intolerable. The south-west monsoon has in Scinde one peculiarity; for, while to the south of Cutch it is characterised by the deluges of rain with which it inundates the western shores of India, at Kurrachee there is seldom rain, a shower being only experienced on some rare occasion during the summer. Thus the dark, gloomy curtain of clouds thrown over the country gives protection from the solar rays, without the evils too frequently resulting from immense and long-continued falls of rain, more especially when it lies exposed or is retained by dense vegetation. Though the range of temperature in Scinde be so considerable as from 40° in the cold to 100° in the hot season, and the barometrical condition of the atmosphere in summer and winter varies in proportion,—yet these extreme states take place gradually, and the intervals betwixt the monsoon are marked by much fewer and less sudden vicissitudes of temperature. Kurrachee is liable to constant dust storms, the wind carrying with it clouds of dust, from whatever quarter it may blow.

The absence of vegetation, the dryness of the soil, the insignificant fall of rain, and the nature and duration of the prevailing winds, are all highly favourable to the health of troops; and the

character of the climate is shown by the mildness of the febrile attacks, and the trifling mortality resulting from them.

POINT MONORAH.

POINT MONORAH, a high bluff tongue of land on the south-west side of the entrance of Kurrachee harbour, six miles from the cantonment, has been recommended as a convalescent station. The Amcurs of Hyderabad erected a fort here, to protect the harbour from pirates, but it is now in ruins. The point is 1376 by from 186 to 400 yards in length and breadth. Its soil is of red gravel, of several feet in depth, resting upon clay, and the slope of the ground does not permit water to lodge and stagnate. There is an excellent beach for sea-bathing, with sufficient space for exercise and for the erection of hot salt water baths; the water is clear, and the bottom of white sand; the sea-breeze from the west, sometimes inclining to north or south, is strong and refreshing, and the thermometer falls about five degrees lower than in the cantonment. The air is pure and pleasantly cool; with cold mornings, evenings, and nights. The great drawback appears to be the want of good water. In 1839 some sick and convalescents of her Majesty's 40th and the Company's 2d Grenadier Regiments were sent to the point; and, though lodged there in common tents, the improvement in their health exceeded the warmest expectations.

THERMAL WELLS.

About seven miles from Kurrachee, in an irregular chain of hills which runs nearly east and west, are thermal wells. The temperature of the principal well is $97^{\circ} 5'$. Some are lower than this, but one is so high as 120° . Uncombined acids, chiefly the muriatic, are found in the water, which is used by the inhabitants both internally and as a bath, and many virtues are attributed to it. An officer of the 8th (King's) Regiment, who laboured under chronic rheumatism with some contraction of the joints, lately gave it a trial, and derived marked benefit from its use. Whether, as the sanguine anticipate, it may be found useful in chronic disorders of the bowels, in syphilitic and cutaneous complaints, remains to be proved.

CLIFTON.

The Clifton of Kurrachee, a few bungalows scattered over a low ridge on the sea coast at two miles' distance, offers to the convalescent, who has the fortune to hire one, an occasional retreat and exemption from the scorching winds to which the cantonment is exposed in the hotter months of the year.

Cantonments.—Two miles to the north of the town, with an intermediate sandy plain exhibiting hardly a vestige of vegetation, appear the cantonments, distributed over a surface of about 4000 yards in diameter. To the north-west of them is the Government garden, covering forty-three acres of ground, carefully cultivated and well kept, until the disturbances in the Punjaub converted into camp followers the commissariat labourers on whom that duty had devolved. Next the garden, to the north-east, is the old bazaar; then follow, in the same direction, lines, now occupied by the 26th Regiment Native Infantry, consisting of forty pendals in four rows, ten in each, on an area of 220 yards per side. For twenty-six of these pendals H. M. 86th Regiment exchanged its tents with the best effect during the awful visitation of cholera in 1846. A little way to the north-west of them are other native lines occupied by the 11th Regiment Native Infantry. 500 yards from the first, on the south-west, are three temporary barracks, and one permanent hospital for a company of artillery. The horse artillery barracks, three in number, of two storeys, hardly yet finished, and superior in construction and accommodation, are at the south extremity of the cantonment, near the harbour.

b. European Infantry Barracks.—A hundred yards to the north-east of the 26th Native Infantry pendals are the European Infantry barracks, lately occupied by H. M. 60th Rifle, and now by the right wing of the 8th (King's) Regiment. Their hospital follows in the same direction, and both together cover a surface of 700 by 300 yards. They occupy an oblong slightly elevated piece of ground, and are disposed in two parallel lines, facing the north-east, five pendals in the first, four in the second. In a third line are six patcheries; and in a fourth, three buildings, containing the canteen, school-room, library, quarter guard, and sergeants' mess-room. The two lines of pendals are divided by a street about fifty yards broad; those of the same line by an interval of thirty feet. The regularity of the rear line is broken by the oblique projection backwards of the two pendals on the right, which have an angle betwixt them open to the south-west. The pendals of the second are opposite the intervals betwixt those of the first lines. Every pendal consists of one principal and eight small rooms, four at each end. The foundation is of stone and lime, the walls and floor of mud; the former, one foot nine inches thick; the roof of timber, mud, and lime. The large room is 152 feet long, 29 feet 10 inches wide, 10 feet high at the sides, and 17 feet 2 inches at the ridge pole. Six of the small rooms are occupied, each by a married serjeant, or by two unmarried men. Every pendal is capable of accommodating 82, and the whole nine 738 men, allowing twelve for the small and seventy

for the large rooms, at the rate of 65* square and about 780† cubic feet per man.‡ The large rooms have five doors and twenty windows. Folding shutters, opening inside, occupy the two lower thirds of the windows, glazed sashes, opening upwards and outwards, the upper. The small rooms are ten feet three inches square. Two are used as washing rooms. The verandahs are ten feet seven inches wide, and raised eight inches or more from the level of the esplanade. In two of their corners are cooking ranges, for the use of serjeants occupying the end rooms.

The patcheries form a third line, in which there are six, and a seventh detached. They are good comfortable quarters, and were built in 1844. The walls are of stone, the floors of mud. Every building is divided into fifteen rooms, seventeen feet eight inches by thirteen feet five inches in length and breadth, with two doors and two glazed windows, and verandahs in front and rear. Every room is intended for two families; and the whole furnish accommodation for 210 married or 420 single men.

About 1400 yards to the north-north-west of the European Infantry barracks, are the Pendlas on the Heights, six in number, in which were formerly quartered three companies of, and which continue to accommodate the depôt of, H.M. 60th Rifle Regiment. These pendals are temporary and in bad repair, on higher ground and farther from the sea than any part of the cantonment. The strength of the depôt, at my inspection, was 89 men, 96 women, and 127 children.

Six hundred yards to the south of the Pendlas on the Heights, and 1100 to the east of the European Infantry barracks, are the Lower Pendlas or temporary barracks for European infantry, from 1846 to last October occupied by the 1st Regiment of Bombay Fusiliers, and five of them now by the left wing of H.M. 22d Regiment. These buildings are of enormous size, and built of mud. They are divided into one large and four small end rooms, the former being 264 feet long, 24 broad, the wall fourteen feet high, the ridge pole only one foot higher, making the roof, which is of matting and mud, almost flat. They are surrounded by a verandah ten feet wide. The mud walls are fifteen inches thick. In every large room are twenty-two doors and eighteen window openings, filled with flimsy mat frames in place of wood and glass. Five pendals are occupied by the left wing of

$$* 152 \times 29 \text{ ft. } 10 = 4535 \div 70 = 64.8,$$

$$+ 4535 \times 10 = 45350 + \left(7 \frac{\text{ft.}}{2} = 3 \text{ ft. } 7 - 1 \text{ ft. } 2 = 2 \text{ feet } 5 \right) 9269 = 54619$$

$$\div 70 = 780.$$

‡ Accurate averages of the *superficial spaces* allowed to soldiers, in barracks and hospitals at different stations, are here calculated from actual measurement, whereas the averages of *cubic spaces* given can only approximate to accuracy, as the length of the ridge pole and the distance of its extremities from the perpendicular of the end walls are not known, and left me only the length and breadth of the floor, and the height of the walls and ridge, to estimate the cubic space above as well as below the walls.

the 22d Regiment, one as an hospital, and another as quarters for medical subordinates and married soldiers.

Thirty paces from the hospital, on the south-east, are two small groups of prison cells, three in each, with a surrounding verandah ten feet wide, a double door, the inner being an open frame of iron bars, and a window in each wall, with ventilation fans in the roof.

The cantonment is supplied with water from a chain of wells extending along the dry bed of a water course, near the government garden to the west. It has a slightly brackish taste. Wells dug to the east of the cantonments yield water too brackish to be fit for any use.

c. Hospital.—The hospital is fifty yards to the north-east of the barracks, and consists of three pendals, two a little in front of, and one a little behind, their rear line; the last twenty-two feet distant from the first, and equal in length to the two, which are seventeen feet apart. The walls are of stone and lime, ten feet high inside, the floor of clay and chunam, raised two feet from the ground, the roofs tiled, and the ridge pole twenty-two feet two inches high. The rear building has on each side of a central passage two small and one large room, the dimensions of the former being twenty-nine feet nine by eighteen feet five, and of the latter seventy-two by twenty-nine feet nine inches: one of the small rooms is used as a surgery, one as apprentices' quarters; the others, and the two large, as wards. Thirty patients may be accommodated in each of the two large, and seven in each of the small wards, or seventy-four in the whole pendal, with an allowance in the first of 71* square and 957† cubic feet, and in the second of 78‡ square and 1048§ cubic feet. The two front pendals consist each of one ward, corresponding in breadth and height to those in the rear, and capable of accommodating each thirty-eight patients, at the rate of 69|| square and 934¶ cubic feet. The whole hospital, then, is capable of accommodating 150 men. In the large wards of the pendal are three doors and eight windows, in the small rooms one door and two windows, in the wards of the front pendals four doors windows. The doors are half glazed, the windows four feet six inches by three feet in size, and

$$* 72 \times 29\frac{3}{4} = 2142 \div 30 = 71.$$

$$+ 2142 \times 10 = 21420 + \left(\frac{12 \text{ ft. } 2}{2} = 6 \text{ ft. } 1 - 2 \text{ ft. } 8 = 3 \text{ ft. } 5 \times 2142 =\right) 7318 = 28738 \div 30 = 957.$$

$$\dagger 29\frac{3}{4} \times 18 \text{ ft. } 5 = 547 \div 7 = 78.$$

$$\S 547 \times 10 = 5470 + \left(\frac{12 \text{ ft. } 2}{2} = 6 \text{ ft. } 1 - 2 \text{ ft. } 8 = 3 \text{ ft. } 5 \times 547 =\right) 1868 = 7338 \div 7 = 1048.$$

$$\parallel 89 \times 29\frac{3}{4} = 2647 \div 38 = 69.$$

$$\P 2647 \times 10 = 26470 + \left(\frac{12 \text{ ft. } 2}{2} = 6 \text{ ft. } 1 - 2 \text{ ft. } 8 = 3 \text{ ft. } 5 \times 9044 =\right) 35514 \div 38 = 934.$$

two feet seven inches above the floor. The windows have two sashes below, opening laterally and inwards, and one of half the depth, opening upwards and outwards.

The wards are surrounded by verandahs ten feet ten inches broad, raised two feet from the ground. Behind and to the east of each pendal, are a kitchen and a latrine, the latter joined by a covered passage, and in the passage from the largest pendal a small bathing room.

The women's hospital is about a hundred paces to the east of the men's, and consists of three apartments, one thirty-one feet ten long, twenty-one feet ten broad, another twenty-one feet ten by eleven feet eleven; the third, eleven feet eleven inches square; the last is occupied by the matron. In the first is room for ten, in the second for four beds. The building is surrounded by a verandah, from which are covered ways to the kitchen on one side, and latrine on the other.

HYDERABAD.

a. Station.—HYDERABAD is situate in latitude $25^{\circ} 22'$ north, and longitude $68^{\circ} 41'$ east, 101 miles or eleven days march, including one of halt, north-east from Kurrachee, and 728 miles *via* Ahmedabad, north-west from Bombay. The road is over heavy sand, with few traces of vegetation for the first or second days' march, but the soil afterwards improves, and near Ghooza, forty-two miles from Kurrachee, it seems rich, and is to some extent cultivated. Troops proceeding on this route, beyond Hyderabad, generally march in six days from Kurrachee to Tatta, sixty-five miles, and thence proceed up the Indus in steamers with flats in tow, which run during daylight only, being fastened to the bank of the river in the night.

The fortress of Hyderabad stands on a rocky hill, the base of which is washed by the Fulalee, a branch of the Indus. The nearest point of this river is three miles south by west of the fort, where is a valley on its eastern bank, from which boats constantly ply to Kotree on the western side, in the route from Kurrachee to Hyderabad. The fort is of an irregular pentagonal figure, adapted to that of the rock on which it stands, and is defended by round towers and a high brick wall, perforated with matchlock loop-holes. There are several mosques within the fort, and on a hill to the south the sumptuous tomb of the founder of the Principality, Ghoolaum Sahib. The town is built of mud, on a lower level, and the streets narrow, dirty, and crowded. The soil in the vicinity, though light and sandy, is very fruitful when properly watered and cultivated.

b. Barracks.—Of ten barracks for European troops at this

station, five only are yet completed, but these furnish ample accommodation for the left wing of the 8th (King's) Regiment, which marched from Kurrachee to Hyderabad on the 12th, and arrived on the 23d February last, the strength of non-commissioned officers and men being 497. The barracks are built on a plain, about a mile distant from the town, in two lines of five each, but in the front line is the canteen and quarter-guard in one building, and in the rear line another building for the library, school, and orderly rooms, making six large buildings in each line, or twelve in all. The two lines are divided by a street 140 feet wide, and the barracks of the same line by convenient intervals. They have inner and outer walls in front and rear, of burnt brick and lime, two feet thick, and whitewashed; verandahs all round, floors of brick flags, raised from two to three feet, and double-tiled roofs, supported by the walls. Every barrack covers a space of 220 by 69 feet in length and breadth, and is divided into three very long and eight end rooms; the central and side rooms are 174 feet long, the former 24, the latter 12 feet wide, the outer walls 20, the inner 27, and the ridge pole 33 feet high. The inner side and end walls are pierced by thirty-two arched openings four feet wide and about sixteen high, eight of which reach to the floor and serve for doorways, twenty-four are obstructed by partitions, eleven inches thick, three feet deep, raised one foot above the floor, and serve for windows. There being as yet no racks, pegs, or shelves for arms or accoutrements, the tops of these partitions, with cords and ropes nailed into the walls, are used as temporary substitutes. Betwixt the roof and each of these high passages, for light and air, is a supplementary arched opening through the walls, four feet wide, and about two and a half deep. In each outer wall of the long narrow side rooms are fifteen folding doors opposite to the inner wall openings, eight feet high, three feet wide, each half or valve being divided into two sashes of moveable Venetians, with a pane of glass fixed over them; above each door is another window of four immovable panes, and higher up under the roof are oblong holes, eight inches deep, fitted with fixed Venetian fans, and opening externally above the verandah roofs. The verandah is eight feet eight broad, seven feet four in height at its lower edge, and supported by brick pillars one foot five inches square.

The centre and one of the sides are used as sleeping apartments, the other side room as a mess-room. In the centre room are two, and in the side room is one row of bedsteads, distributed in pairs betwixt every two wall openings; and the intervals betwixt these being sixteen in number on each side, with a breadth of seven feet, sixty-four men are accommodated in the centre, thirty-two in the side room, ninety-six in both,—giving four feet

betwixt every pair of eots, and two feet betwixt the two of every pair, with an interval of eleven feet four inches in the centre, and five feet eight inches in the side room. Adding eight serjeants from the end rooms, the number for every barrack will be 104, and for the whole ten, when finished, 1040; on emergency, 320 more, making 1360 in all, might be accommodated, by using as sleeping quarters the rooms now set apart for messing, without taking into account married men in the patcheries. Every man in the centre and side rooms has 65* superficial and 1736† cubic feet.

The end verandahs are twelve and a-half feet long, eight feet wide, and communicate with the central rooms by a passage, on each side of which are two serjeants' rooms, twenty feet six inches in breadth, by ten feet in the length of the barrack.

Eleven feet behind the middle of each barrack is a washing house, thirty feet long and fifteen feet wide, with a slightly convex brick floor, a channel at each side, sloping from the ends to the centre, where the wall is perforated for the passage of the water. Side verandahs lead to two urinaries, with channels lined with glazed tiles, for the reception and conveyance of the urine to cess-pools on the outside. Behind the wash house, a flight of steps leads to a plunge-bath in the same building, thirteen feet nine inches long, five feet ten inches broad, and three feet ten inches deep. The cesspool and drains, for the reception of the refuse water from these various sources, are neither paved nor covered beyond the building.

The canteen, serjeant's mess-room, and quarter guard are to occupy one building betwixt the third and fourth front barracks, and the library, school, and orderly room, another betwixt the second and third of the rear line; but they are not yet finished.

The cooking houses and latrines are in the rear of all; the former have very convenient cisterns for water in front of them. It is of excellent quality, but requires to be kept in casks or chatties till the mud subsides.

Patcheries.—Two hundred and thirty paces behind the barracks are eight patcheries, in one line, with the quarter-master serjeant's house in the middle, each with fifteen rooms, but two only are yet finished, and they are occupied by thirty married men. They are by far the best I have seen in the command. They are of the same materials as the barracks, each 210 feet long, and 34 feet broad, divided into fifteen rooms, with a double sloping tiled roof. Every room is sixteen feet by twelve; the side wall about fourteen feet, and the ridge pole eighteen feet high. Eight paces behind

* $174 \times 24 = 4176 \div 64 = 65.$

† $4176 \times 27 = 102752 + (\frac{6}{2} = 3 - 1 = 2 \times 4176 =) 8352 = 111104 \div 64 = 1736.$

them, and four and a-half paces apart, are, buildings, one for every two families, consisting of a cook-room in common, two washing houses, and two latrines.

c. Hospital.—The hospital is about 1000 feet to the east by south of the barracks, and has a south-western aspect. The principal buildings extend over a surface of 883 by 390 feet, and consist of a projecting centre, in which are the surgery, medical and clothing stores, and apprentices' rooms; two houses in front of it for the apothecary and steward's; two long side wings, for the accommodation of the sick, eighty feet apart, but joined to the centre by covered passages; beyond, and in front of the last, on the left, a small detached wing forming the women's hospital; and on the right, the kitchen, bathing rooms, &c. of the apothecary and steward. A hundred and ten feet behind the centre of the hospital, are the kitchens, two in number, and beyond and behind the attached wings, at the end of covered ways, eighty-two feet long, are the latrines and urinals, one for each wing. The walls are of burnt brick and lime, plastered and whitewashed; the floor of brick flags, three feet from the ground; the roofs tiled. Each principal wing is 228 feet in length, 78 feet in breadth; the centre, in front of them, 79 by 39 feet 6 inches; and the detached wings, $75\frac{1}{2}$ by $43\frac{1}{2}$ feet. The verandah surrounding the main building is 278 feet long at the sides, 76 feet at the ends, 12 feet wide, 15 feet high internally, 12 feet externally, and supported by brick piers, 17 inches thick, $3\frac{1}{2}$ feet broad. At the outer end of each wing are two small apartments, 12 feet square, with a passage betwixt them into an immense ward, which is 222 feet long, 24 feet wide, and 22 feet high. On each side of this ward is another of the same length, but only 18 feet high, and 12 feet wide.

The centre and side wards communicate by twenty pairs of arched doorways about nine feet high and four wide, and opposite to them, in the centre walls of the side wards, is the same number of folding doors, with upper sashes glazed.

In the right wing, the three large wards have no sub-divisions in the left, the central is divided into three compartments, 104, 76, and 42 feet in length, by partitions which reach to within six feet of the ceiling, and in which are left arched passages seven feet and a-half wide, and about nine feet high.

Each of the large central wards would accommodate eighty-eight men, at the rate of 60* superficial and 1513† cubic feet; each of the side wards forty-four men, at the rate of 60‡ superficial

$$* 222 \times 24 = 5328 \div 88 = 60.$$

$$† 5328 \times 25 = 13320 \div 88 = 1513.$$

$$‡ 222 \times 12 = 2664 \div 44 = 60.$$

and 1089* cubic feet, the whole hospital 352 men. But if the ten barracks were filled, it is not likely the sick would ever exceed 176, the number to be accommodated in the two central wards.

One wing of the hospital has been hitherto sufficient for the sick of the 22d Regiment. In want of barrack accommodation, part of the other is now used as an officers' mess-house; and in want of private houses, officers have been obliged to take possession, as quarters, of the female hospital, and of the central apartments, apothecary and stewards' houses. Under the cieling are ventilation holes about eighteen inches long, and four deep, which open on the outside above the verandah roof; and in the corners of the cieling itself are other openings of a triangular shape, fifteen inches on each side.

Betwixt the two kitchens is a water cistern; as for those of the barracks. There is no dead house.

The left detached wing, or women's hospital, consists of three rooms on one line, each fifteen feet ten by fifteen feet six inches in size, the central having a verandah before and behind, the side rooms on three sides. There are three small additional apartments, and a latrine in the four verandah corners.

The barracks and hospital are supplied with water from a Government well, above a mile and a-half from the cantonment. Seven months in the year the wind blows from the east or south-west, five months from north-east or land.

GOVERNMENT GARDEN.

There is a Government garden on the banks of the Indus, three or four miles from Hyderabad, from which the Queen's troops were supplied with vegetables by the commissariat department, at a fixed price, up to 1st April last, since which this supply has been stopped, and the allowance they now receive for two pice a day is very scanty.

$$* 2664 \times 18 = 47952 \div 44 = 1089.$$



PART II.

On the Health of the Queen's Troops serving in the Presidency of Bombay, from 1st April 1847 to 31st March 1848.

OF the twelve months embraced by this contribution, I spent only five in the Bombay Presidency ; and as my opportunities of personal observation and inquiry when it was written, had not extended beyond Bombay proper, Poona, and Kirkee, it is little more than an analysis of the annual sick returns.

Stations and Movements.—The 10th Hussars have kept their station at Kirkee, the right wing of the 8th (King's), and the 22d Foot at Poona, the 78th Highlanders at Belgaum, and the 1st battalion 60th Rifle Regiment at Kurrachee in Seinde, the whole year. From April to October inclusive, the 86th Regiment was divided betwixt Poona and Colaba. Early in November the right wing left Poona ; and early in December the left

wing Colaba for Dcesá, to relieve the 28th Regiment, which simultaneously moved towards Bombay, and embarked for England in January, being previously reduced in strength, by the discharge of volunteers for other corps, from 1125 to 660 men.

General Health of the Queen's Troops in comparison with former years.—During the year ending 31st March 1848 of the Queen's troops, the

Average strength has been,	... ..	6604
Average daily sick,	... ..	522
Or 79 per thousand.		
Total number admitted,	.. ..	11538
Or 1747 per thousand.		
The deaths in hospital,	... ..	145
Or 22 per thousand of the strength,		
and $12\frac{1}{2}$ per thousand of the admissions.		
The number invalided,	... ..	160
Or $24\frac{1}{2}$ per thousand of the strength.		

With exception of 1832, in which 74 men only died, from an average force of 3670, that is $20\frac{1}{10}$ per thousand, no year embraced by the records of my office has been so propitious to the health and life of Queen's troops, serving in this Presidency, as the last. Since the 21st December 1825, the date at which these records commence, the average annual strength has been 4427.

Average daily sick,	386, or	87	} per 1000 of the strength.
Average annual admissions,	... ..	9180, or	2073
Average annual deaths,	... ..	283, or	64

and 30·8 per 1000 of the admissions.

Average annual number invalided, 135, or $30\frac{1}{2}$ per 1000 of the strength.

In four out of these twenty-two years the mortality exceeded one-tenth of the strength, being

In 1825,	305 from 2973,	or 102·6 per 1000.
„ 1839–40,	343 „ 3413,	„ 100·5 „ „
„ 1842–43,	733 „ 6858,	„ 106·9 „ „
„ 1844–45,	797 „ 6354,	„ 109·7 „ „

In 1846–47, the mortality was not quite so high as in any of the four years referred to, being 659 from an average strength of 6740, or 97·8 per 1000.

Comparative Health of Different Corps.—The comparative sickliness and mortality of different regiments during the past year are shown in this table :—

	10th Hussars.	8th.	22d.	28th.	60th.	78th.	86th.	Tot.*
Average annual strength,	649	1019	958	1021	951	1112	893	6604
Remained sick 1st Ap. 1847,	52	124	72	56	45	138	52	539
Average daily sick,	63	106	78	61	45	113	56	522
Being per 1000 of the strength,	97	104	81	60	47	102	63	79
Sick admitted,	1532	2121	1935	1247	1136	1984	1583	11538
Being per 1000 of the strength,	2361	2081	2020	1221	1194	1784	1772	1747
Deaths,	17	13	23	17	23	13	39	145
Being per 1000 of the strength,	25.4	12.7	24	16.7	24.2	11.7	43.7	22
" " of the admissions,	11.1	6.1	11.9	13.6	20	6.6	24.6	12.5
Discharged,	1502	2150	1841	1273	1066	1988	1528	1148
Invalided,	16	13	42	13	27	34	16	161
Being per 1000 of the strength,	25	13	44	13	28	31	18	24
Remaining sick 31st March 1848,	49	69	101	...	65	87	52	423

It hence appears that in different corps the average daily sick varied from 47 to 104 }

Total annual admissions, 1194 ,, 2361 } per 1000 of the
Total deaths, 11.7 ,, 43.7 } strength.
Number invalided, 13 ,, 44 }

And that in order of Sickliness. In order of mortality.

The 10th Hussars are	1st.	...	86th Regiment,	1st.
„ 8th Foot, .	2d.	...	10th Hussars, .	2d.
„ 22d „ .	3d.	...	60th Rifles, .	3d.
„ 78th „ .	4th.	...	22d Foot, .	4th.
„ 86th „ .	5th.	...	28th „ .	5th.
„ 28th „ .	6th.	...	8th „ .	6th.
„ 60th „ .	7th.	...	78th „ .	7th.

In addition to 145 deaths in hospital 12 casualties occurred, 5 by drowning, 2 by suicide, 1 by ruptured blood-vessel, 2 by apoplexy; and of 2 men found dead the cause was unknown.

* The total of these corps was 6603; in addition there was one man of the 17th Regiment of foot at the Queen's Dépôt, Colaba.

The following table has been constructed for the more precise calculation of the

Comparative Salubrity of different Stations.

Divisions.	Stations.	Period.	Corps.	Average strength for the period.	Average annual strength.	Admissions.	Rates per 1000 of admissions to annual strength.	Deaths.	Rates per 1000 of deaths to annual strength.
Presidency, Colaba,		17th Jan. to 31st Mar.,...	8th, lft. wing,	478	97	148	1526	1	10
		1st Dec. to 8th Feb., ...	28th Regim.	647	129	187	1449	3	23
		1st April to 2d Dec., ...	86th, lft. wing	407	274	547	1996	23	84
		Total,			...	500	882	1764	27	54
Poona,	{ Kirkee,...	Whole year,	10th Hussars	...	644	1508	2342	16	25
		"	8th Foot, ...	...	919	1963	2136	11	12
		"	22d "	...	945	1889	1999	22	23·3
		1st April to 7th Novem.,	86th, rt. wing	...	227	417	1837	3	13·2
Total—Poona,				2091	4269	2041	36	17·2	
Total—Poona division,				2735	5777	2112	52	19	
Southern,...	Belgaum,...	Whole year,	78th Regim.	...	1101	1949	1770	13	11·8
Northern,....	Deesa, ..	17th Ap. to 30th Nov.,...	28th "	1125	882	1032	1170	13	14·8
		17th Dec. to 31st March,	86th "	709	261	436	1670	11	42
		Total,			1143	1468	1284	24	20·9
Scinde,.....	Kurrachee,	Whole year,	60th, 1st Batt.	...	936	1119	1109	22	23·5
En route from Poona and Bombay to Deesa.	{	8th Nov. to 1st Dec. and 3d Decem.,	86th Regim.,	1125	103	154	1495	1	·97
		Queen's Depot and invalids,			86	189	2198	6	69
Total in the command,				6604	11538	1747	145	22	

By this table it appears that of every thousand men serving in

	Were admitted	Died.
The Command,	1747	22
Presidency Division or Colaba,...	1764	54
8th Regiment,	1526	10
28th "	1449	23
86th "	1996	84
Poona division,	2112	19
Kirkee, 10th Hussars,	2342	25

	Admitted.	Died.
Poona station,	2041 ...	17·2
8th Regiment,	2136 ...	12
22d „	1999 ...	23·3
86th „	1837 ...	13·2
Southern division, Belgaum, 78th Regiment,	1770 ...	11·8
Northern division, Deesa,		
28th Regiment,	1170 ...	14·8
86th „	1670 ...	42
86th, En route to Deesa, ...	1495 ..	9·7
Scinde, Kurrachee, 60th ditto,..... ..	1195 ...	23·5

The most remarkable results of these comparisons are that the left wing of the 86th Regiment lost at Colaba six and a half times as many men, in proportion to the strength, as its own right wing at Poona, or the 78th Highlanders at Belgaum; while the 8th and 86th together at Poona lost little more than one-half the proportion lost by the 22d at the same station, or by the 10th Hussars at Kirkee.

Colaba and Poona, on the Health of H. M. 86th Regiment.—Having called for separate monthly returns of the two wings of Her Majesty's 86th Regiment, from 1st April to 31st December 1847, I received with them from Dr Thom, surgeon of the regiment, the following observations.

“The accompanying returns present a very clear proof of the effects of the climate of Bombay and Poona on European soldiers, after having been debilitated by three years' service in Scinde, the longest period that any corps has yet remained in that unhealthy and treacherous region.

“The constitutions of the men of both wings were nearly alike; both had been subject to the long march of one thousand miles to Bahawalpore, and tried, by a residence in tents, on an arid and scorching plain, near Kurrachee, during the hottest months of the year; and all more or less undermined by the deleterious effects of the atmosphere, which spread a deadly pestilence, in the form of cholera, over the cantonments, and in a few days carried off about 240 of the regiment, leaving nearly 200 convalescents in the ranks, who, although escaping from the direct effects of the appalling malady, yet had been so seriously shattered, as to leave them prone to an attack of other diseases, especially those that prevail at Bombay.

“The regiment had scarcely recovered from the terrible visitation of cholera in June and July 1836, when it was ordered down from Kurrachee, and the largest body left to do duty in Bombay, where it remained from February to December 1847.

“The great disproportion between the admissions and deaths in the wings at Poona and Bombay, cannot in any way be accounted for, except by the effects of the climate and duties of the

latter on weakly men. If there can be any difference traced between the state of the health of the two bodies, on their leaving Scinde, it was decidedly in favour of that left in Bombay, in as much as it consisted of the centre companies, which suffered least from cholera. The grenadiers and light company lost nearly twice as many men from cholera as those of the centre companies, and were subsequently much more sickly, but were sent to Poona.

“ It is equally remarkable, that last year both Poona and Bombay were unusually healthy, and free from those epidemics that occasionally visit that part of India with fatal sweeps, and, in particular, render the latter place so injurious to the health of European soldiers. It is said that the opportunities for drinking are more numerous at Bombay than Poona. This I question very much, as the open cantonment of the latter is much more surrounded by places where intoxicating liquors can be procured than the island of Colaba, communicating with the fort of Bombay by a narrow causeway. The duties of Bombay are no doubt very severe, and must have told seriously on the broken constitutions of our men just arrived from Scinde. This would appear to be confirmed by the fact of the principal mortality in the wing arising from organic disease, only four out of twenty-five having died from fever, while more than two-thirds of the fatal cases occurred from affections of the abdominal viscera,—a class of ailments alike numerous and formidable in Scinde, which had chiefly prevailed in the regiment for the previous twelve months.

“ The following abstract affords a parallel and comprehensive view of the more important groups of diseases, and their proportional mortality in the two wings of the regiment at Poona and Bombay.

STATION.	WING AT BOMBAY.				WING AT POONA.			
Strength.	450.				401.			
Diseases.	Admitted and Treated.	Died.	Ratio of Admission to Strength per 1000.	Ratio of Death to Admissions per 1000.	Admitted and Treated.	Died.	Ratio of Admission to Strength per 1000.	Ratio of Death to Admissions per 1000.
Febrile Diseases,	286	4	635	14	101	...	250	...
Head do....	11	3	24	272	1	..	2	..
Thoracic do....	26	1	57	38	32	1	79	31
Abdominal do...	135	17	300	126	120	2	299	16
Other do...	247	...	548	...	218	...	543	...
Total,....	705	25	1166	35	472	3	1179	9

“The preceding abstract does not exactly show the full extent of the disparity between the diseases and deaths of the two wings; for of three deaths at Poona, one was that of a sergeant sent up from Bombay, in the last stage of hepatic disease, with three large abscesses in the liver, and who died within a fortnight after his arrival at Poona. Properly speaking, this ought to be deducted from the Poona return, and added to the column of deaths, which are attributable to Bombay. Besides these, two men, belonging to the wing, that was at Bombay, died of hepatic and pulmonic diseases within three or four days after their junction with the other half of the regiment at Deesa; and these two cases ought virtually to be included under the head of deaths caused by maladies contracted at Bombay; but as those casualties did not actually happen before the junction of the two wings, they have not been entered in the accompanying returns.

“The cases would stand thus,—28 deaths at Bombay in 450, and 2 at Poona in 401, or in the ratio of 62 per 1000 at the former, and 5 per 1000 at the latter. This is, indeed, a very striking, almost fearful disproportion between the effects at Bombay and Poona; but I have no hesitation in saying that the fatality which occurred at Bombay was very much to be attributed to the previous effects of residence in Scinde, leaving the seeds of disease, in a latent state, ready to be called into dangerous activity by the climate of Colaba, or, on the other hand, to be eradicated by the fine bracing air of Poona. Had another body of men, from a more salubrious locality than Scinde, been in Bombay during the last unusually healthy year, the probability is, that, instead of losing upwards of six per cent. in nine months, they would have lost only three or four.

“It is remarkable that the number of admissions in the two wings is by no means so unequal as might be expected, and the difference chiefly consists in 185 cases of fever more at Bombay than at Poona; yet, from this class of ailments, the mortality is trifling, indeed extraordinarily so, considering the climate.

“It is to ailments of the abdominal viscera that the principal mortality is traceable, and of the whole 28 deaths occurring in the wing at Bombay, 19 are referable to those diseases. Now, it is a singular fact, that the rates of admissions from these are exactly alike in both wings, being 300 per thousand at Bombay, and 299 at Poona. Here, however, the comparison ends; for, in the rates of *death to admissions*, it is 126 per thousand at the one, and only 16 per thousand at the other, even as the table stands; and, as I have explained, that one of the hepatic cases at Poona belongs to Bombay; another, since dead, is to be added; it leaves the true state to be 140 per thousand at Bombay, and 8 per thousand at Poona. It is chiefly on this circumstance that I found my opinion, that both wings of the regiment were highly

predisposed to affections of the abdominal viscera, from their services and sufferings in Scinde; but that, although numerically alike in both bodies, they acquired at Bombay an intensity that led to the fatal results before us. The detail of these diseases is as follows.

Abdominal Diseases.	At Bombay.		At Poona.	
	Admitted.	Died.	Admitted.	Died.
Peritonitis and gastritis,	4	...	...	...
Hepatitis acuta et chronica,	21	5	21	2
Diarrhœa, .....	...	...	55	...
Dysentery acuta et chronica,	36	8	12	...
Cholera,	7	2	2	...
Colica,	23	...	9	...
Dyspepsia,	42	2	21	...
Hæmorrhoids,	2	...	...	...
Total,	135	17	120	2
By preceding explanation ought to be ...	...	19	...	1

"The numbers of bowel complaints are nearly the same in the aggregate; but, instead of 36 attacks in the form of acute dysentery at Bombay, only 12 occurred at Poona, while 55 cases of diarrhœa took place at the latter. Strange to say not a single case is recorded as having been admitted at the former; but, in lieu thereof, 23 admissions of colica, and an increase of dyspeptic cases, restore the numerical balance."

Comparative prevalence and fatality of different classes of diseases.—Of 11,538 admissions in the whole command were returned under

		Per 1000 of the whole admissions.	Died.	Per 1000 of the whole deaths.
Fevers,	3066	i. e. 263	30	207
Eruptive fevers,	12	1	...	...
Diseases of the {	Lungs,	541	47	19
	Liver,	463	40	26
	Stomach and bowels,	1880	163	49
	Brain,	92	7.1	11
Dropsies,	7	6	1	7
Rheumatisms,	780	68	...	...
Venereal diseases,	2360	204	2	13.2
Ulcers and abscesses,	745	65	...	...
Wounds and injuries,	598	52	1	7
Punishment,	3	26	...	...
Morbi oculorum,	354	30.7	...	...
Morbi cutis,	53	4.5	...	...
Other diseases,	584	56	6	41
Total,	11538	...	145	..

Of the fevers, 1543 were admitted and 3 died under intermittent.				
195	...	14	...	remittent.
1328	...	13	...	continued.
<hr/>		<hr/>		
Total, 3066		30		

Prevalence and fatality of fever at different stations.—Of the 30 fatal cases from this class of diseases,

			Annual average strength.	Being per 1000 of Admissions to annual strength. Deaths to admissions.		
5 occurred in	380	from	586 at	Colaba,	648	13
4 ...	260	...	644 „	Kirkee,	404	15
9 ..	1517	...	2091 „	Poona,	724	6
1 ...	173	...	1101 „	Belgaum,	157	6
8 ...	496	...	1246 „	Deesa,	391	18
3 ...	240	...	936 „	Kurrahee,	256	12½
<hr/>		<hr/>		<hr/>		<hr/>
30	3066		6604		464	9·78

By this calculation it appears that among every thousand men throughout the command, 464 cases of fever occurred during the year; and that of every thousand cases of fever, 9·78 died, while at different stations the proportion attacked varied from 157 to 724 per thousand of the strength, and the deaths from 6 to 16 per thousand of the admissions; that fevers were least fatal at Poona and Belgaum, and at Belgaum least prevalent also; but at Poona more prevalent than at any other station.

Fever in Her Majesty's 22d Regiment.—1044 cases occurred in the 22d Regiment at Poona, being nearly one-third of the whole, and in the proportion of 1184 per thousand of the strength of the corps, while only 5 or 4·79 per thousand of the number attacked died. During a portion of the preceding year, the 22d Regiment had suffered severely from fever at Colaba and Bombay, the total number of cases treated having been 2549. A large proportion of the men who continue to suffer from periodical fever have enlarged livers or spleens, and are subject to relapses from slight causes. Of the five fatal cases, however, two were in recruits, 18 or 19 years old, who had been respectively 6 weeks and 4 months only in the command. The subjects of the other three were from 23 to 24 years old, and had served here betwixt 18 months and 4 years. In one of them the liver, spleen, and mesenteric glands were found enlarged; one lobe of the left lung hepatized, and the cæcum the seat of a few ulcerated spots. Another had been previously in hospital on account of

fever and bowel complaint, and was re-admitted six days after his discharge, with low typhoid symptoms, which carried him off in four days more.

Remittent Fever in Her Majesty's 8th Regiment.—Of three fatal cases returned under remittent fever in the 8th Regiment, two were admitted on the 10th, and the third on the 12th February, all from the same barrack-room; and this room exposed to the emanations from a neighbouring latrine, to which Dr Tice attributes the fatal attack. Only one other fatal case of fever occurred in that corps at Poona, and one at Colaba, making five in all.

Of the remaining fatal cases of fever at Colaba, four in number, one occurred in the 28th, and three in the 86th Regiment.

Of eight fatal cases of fever referred to Deesa, six belonged to the 28th and two to the 86th Regiment; but two of the former and one of the latter occurred en route to and from Bombay.

Eruptive Fevers.—Under eruptive fevers have been included two cases of small-pox, one in the 8th Regiment at Poona, and another in the 60th Rifles at Kurrachee; both of which terminated favourably, though a married woman of the 8th Regiment, in whom it assumed a confluent form, fell a victim to the disease. This woman had been vaccinated, and retained the mark on her arm. Dr Tice has since vaccinated a great number of his men, and nine cases returned under vaccinia were the first taken into hospital for that purpose. A single case of varicella appears in the 86th return, and occurred in the right wing at Poona.

Stomach and Bowel Complaints.—To diseases of the stomach and bowels are referable 1880 admissions and 49 deaths. Of these cases

				From an average strength.	Being per Of admissions to strength.	Deaths to per 1000 admissions.
233 occurred and 11 died at	Colaba,			586	398	47·2
354 ... 4 ...	Kirkee,			644	550	11·3
579 ... 14 ...	Poona,			2091	272	24·2
250 ... 8 ...	Belgaum,			1101	227	22·7
267 ... 3 ...	Deesa,			1246	214	11·2
197 ... 9 ...	Kurrachee,			936	210	45·7
1880	49 in the command,			6604	286	26

Bowel complaints, therefore, varied in prevalence at different stations, from 210 per thousand, or less than one-fourth of the strength in Scinde, to 550 per thousand, or above one-half of the strength at Kirkee. The proportion of fatal cases was highest at Colaba, being 47·2 per thousand of the admissions, and nearly as high, *i. e.* 45·7 at Kurrachee, while at Deesa it was so low as 11·2, and at Kirkee as 11·3 per thousand.

The specific diseases referred to this class are of

Peritonitis,	5 admissions	1 death.
Gastritis,	7 „	... „
Enteritis,	5 „	1 „
Hæmatemesis,	3 „	... „
Dysentery acuta,	309 „	29 „
Dysentery chronica,	94 „	10 „
Diarrhœa,	868 „	5 „
Cholera,	20 „	2 „
Dyspepsia,	271 „	... „
Colica,	230 „	... „
Obstipatio,	68 „	1 „
Total, 1880		49

Internal Strangulation of Intestines causing Fatal Enteritis in Three Cases.—Three varieties or modes of internal strangulation, causing obstruction of the bowels, inflammation, and death, have been exemplified in different corps during the year.

A fatal case of peritonitis occurred at Poona in a man of the 86th Regiment, who had been for several years exceedingly subject to cholera, colic, and pain of the bowels. The symptoms were very acute, and, in spite of active treatment, the disease rapidly terminated in gangrene. On inspection after death the descending colon was found to be bound down, in an unnatural position, to the cæcum, by old adhesions betwixt them, and the omentum to present an almost insurmountable obstruction to the passage of flatus or fæces. The large intestines were greatly distended by gas, “which, in connection with the adhesions, had caused twistings and duplications that acted as complete obstructions, and the more insuperable had become the barriers to the escape of air. The result was, that the whole of the ascending, and a portion of the transverse colon, were found to be in a state of sphacelus.”

Total obstruction of the intestines occurred, from intus-susception, in another case, which has been returned under *obstipatio*, by Dr Tice of the 8th Regiment. On opening the body, foetid gas issued from the abdomen, the small intestines were much distended, the colon presented several sphacelated spots, and, on its lumbar aspect, a perforation was found, through which had been effused into the peritoneal cavity about two ounces of a brownish oily fluid, the materials of an enema injected the day before. Invagination of the ileum into the cæcum had taken place, terminating in a pyriform tumour the size of a hen’s egg, so firmly bound down by adhesions as to be unsusceptible of reduction, and the passage through the strangulated part was altogether obliterated.

The third case occurred in a man of the 22d Regiment, 24

years of age, who was admitted for enteritis on the 14th, and died on the 16th May. The ileum was found highly inflamed and strangulated by a band of peritoneum.

Dysentery at Different Stations and in Different Corps.—Of 403 cases admitted for dysentery, acute and chronic, 39 or 92 per thousand died.

Of 22	admitted at Kirkee	the 10th Hussars	lost 4
" 37	" Poona	" 8th Foot	" 1
" 66	" "	" 22d "	" 10
" 11	" "	" 86th "	" ...
" 10	" Colaba	" 8th "	" ...
" 15	" "	" 28th "	" ...
" 36	" "	" 86th "	" 8
" 12	" "	" Queen's Depôt	" 1
" 75	" Belgaum	" 78th Foot	" 5
" 54	" Deesa	" 28th "	" ...
" 19	" "	" 86th "	" 1
" 46	" Kurrachee	" 60th "	" 9
<hr/>			
403	Total,	.	39

It hence appears that dysentery was most fatal in the 86th at Colaba, the 10th Hussars at Kirkee, and the 22d Foot at Poona. Yet, as Dr Currie of the 22d remarks, "the number of deaths in that corps from dysentery is very small this year compared with the preceding, which amounted to 45. In the end of 1846 and beginning of 1847 the regiment suffered very seriously from bowel complaints, consequent upon the fever, which prevailed so extensively at Colaba; and, probably, some of the casualties from dysentery, during the past year, may be ascribed to the same cause." Two of the fatal cases were complicated with hepatic abscess. One fatal case of diarrhœa, among 99 treated in the 22d Regiment, died also in consequence of hepatic abscess.

Diarrhœa.—Eight hundred and sixty-eight cases and five deaths are returned under diarrhœa. Three of the deaths occurred in the 78th Highlanders at Belgaum out of 83 admitted; one in the 86th at Colaba out of 47; and one, as just remarked, combined with hepatic abscess, out of 66 in the 22d. In some of the cases in the 86th Regiment the disease approached the form of mild cholera, being attended by abdominal spasms, vomiting, as well as purging, and by dejections of a whitish milky colour. In all, exhibiting this last sign, calomel and opium were given, with the effect of at once arresting the bad symptoms, and bringing on a mild reactive stage. The fatal case referred to this head in the 86th occurred in a recruit, who arrived at Deesa from

Bombay in a moribund state, from continued looseness, with swelled abdomen, anasarca, constant cough, and partial palsy of side; hectic fever and diarrhœa soon carried him off. On inspection after death, the heart was thin and soft, the lungs slightly œdematous. There was some effusion into the right cavity of the chest and abdomen, and numerous ulcers along the whole course of the small and large intestines.

Colica in 10th Hussars.—Mr Ross observes, that many of the cases returned under colic in the 10th Hussars might have been referred to bilious cholera, but that he avoided the name as tending to create alarm. These were generally subdued by a dose of mercurial pill and opium, followed by an aperient of jalap, rhubarb, magnesia, and ginger.

Cholera.—Of the twenty cases returned under *cholera morbus* and *cholera spasmodica*, seven occurred in the 86th wing at Colaba, and comprised only two fatal cases; three occurred in the same corps at other stations; three in the 78th at Belgaum; and one in the Queen's Depot, Colaba; two in the 28th Regiment, two in the 22d; and one respectively in the 10th Hussars, and eighth wing at Poona.

Hepatic Diseases.—Under hepatic diseases are to be noticed 463 admissions, and twenty-six deaths, comprising 239 cases of acute, 168 of chronic hepatitis (thirteen of each proved fatal); and fifty-six of icterus.

All the fatal cases terminated in suppuration; several of the abscesses were opened by the trocar, and several had made for themselves passages through the diaphragm into the chest or lungs, but without apparent influence in arresting or retarding the fatal termination.

PART III.—*On the Health of the Queen's Troops, serving in the Presidency of Bombay, from 1st April 1848 to 31st March 1849.*

Rations and Diet.—The soldier's daily ration in this command consists of one pound of bread, one pound of beef or mutton, four ounces of rice, one and a-half ounce of sugar, and five-sevenths of an ounce of tea, for which the stoppage from his pay is two annas eleven pics. He is supplied in addition, by private contract, with a supper meal of a quarter of a pound of bread and half a pound of meat. The commissariat rations are generally good and wholesome, though at Deesa the meat, more particularly the beef, is lean, lank, and bony. The mutton cannot be called good, but is better than the beef, and supplied there four days in the week. As some compensation at that station, butter and milk happen to be plentiful and cheap. Here, and at Kurrachee,

the supply of vegetables is scanty and inadequate in the dry season.

Duty and Employment.—The duties are generally light, excepting perhaps at Colaba, where the wing of a regiment, 500 strong, furnishes daily guards, amounting to 85 non-commissioned officers and men, of whom 41 have to march from Colaba to Bombay Fort and back. The additional duties at this station are two commanding officers' parades, and about five adjutants' drills a week. At Deesa, on the contrary, men are required to mount guard only once in ten days.

Internal Economy.—Every possible attention appears to be paid, throughout the command, to the comfort and welfare of the men, who are generally well conducted; yet intemperance is still greatly too prevalent among them. The ordinary punishments are instruction drill, heavy marching order drill, and confinement in the dry room, guard room, or solitary cells. There were eleven cases of corporal punishment during the year, three in the 22d, three in the 60th, four in the 78th, and one in the 86th; none either in the 10th Hussars or 8th Regiment; yet, in this last corps, no fewer than 25 cases of *delirium tremens* occurred, and eight only in all the other corps together; one in the 8th out of 33 cases in all terminated fatally. The canteens are supplied with good English draft porter, by the commissariat department, at cost price, and every inducement held out to the men to drink this liquor or beer in preference to spirits. Every soldier, unfortunately, is still allowed to drink if he choose three drams, equal to one-fourth of a bottle of spirits a day. By the judicious recommendation of Dr Thom, the men of the 86th Regiment, who indulge in the mid-day dram, have that allowance, diluted with two-thirds of water, served out to them in their barrack room, and thereby escape the danger of walking to the canteen under a burning sun. In every corps is a library of well selected books, to which the men subscribe from two to four annas a month; their out of door amusements being cricket, long balls, quoits, &c.

Average Strength, Changes of Station, and Comparative Health of Different Corps.—The command has enjoyed a happy immunity from epidemic or pestilential sickness, and the Queen's troops excellent health, during the two last, as compared with previous years. In that ending 31st March 1848, the deaths in hospital were 145, from an average strength of 6604 non-commissioned officers and men, *i. e.* two and one-fifth per cent. This year, ending 31st March 1849, the deaths have been four more for every thousand men, that is 165 from an average strength of 6295, or two and six-tenths per cent; while during the 21 years, ending 31st March 1847, the average annual strength was 4326, and the average annual mortality 288, or 6.67 per cent.

The 10th Hussars were stationed at Kirkee, the 78th Highlanders at Belgaum, and the 86th Regiment at Deesa the whole year; the 22d Regiment and right wing of the 8th at Poona, the left wing of the 8th at Colaba, and the 60th at Kurrachee, the first six months. On the 29th September the left wing of the 8th embarked for Kurrachee, and was detached to Hyderabad on the 12th February. The left wing of the 22d marched from Poona for Colaba on the 2d October, embarked for Kurrachee on the 24th January, and the right wing proceeded from Poona to replace it at Colaba. The 60th Rifle Regiment marched from Kurrachee, on the 6th October, to the bank of the Indus, and embarked at Tatta five days later, encamped at Roree until the 26th November, and proceeded thence to Mooltan and Peshawur.

The comparative health of different regiments is here shown.

Of the	10th Hussars, Kirkee.	8th Regt. Poona, Colaba, Kurrachee, Hydrabad.	22d Regt. Poona, Colaba, Kurrachee.	60th Regt. Kurra- chee, Pungaub.	78th Regt. Belgaum.	86th Regt. Deesa.	Total.
Average strength,	702	1050	1172	1059	1139	1173	6295
Average daily sick,	75	98	107	57	93	57	487
<i>i. e.</i> per 1000,	107	93	91	54	82	49	77
Sick 1st April 1848,	49	69	101	65	87	52	423
Admissions,	1612	2296	2269	1388	1697	1744	11006
<i>i. e.</i> per 1000,	2296	2187	1106	1216	1455	1401	1748
Deaths in hospital,	9	29	45	32	20	30	165
<i>i. e.</i> per 100 } strength,	12.8	27.6	38	30	18	25	26
of the } admissions,	5.64	14.12	21.1	23	11.7	17	15
Deaths out of hospital,	...	3	...	12	2	...	17
Invalids,	36	41	63	21	45	12	218
<i>i. e.</i> per 1000 of the strength,	51	38	54	19	39	10	34
Sick 31st March 1849,	76	97	106	58	84	63	484
In different corps, therefore, the average daily sick varied from	57	to	107	} per 1000 of the strength.			
Total annual admissions,	1336	to	2296				
Total deaths,	12.8	to	48				
Number invalided,	10.4	to	55				

And in order of

Sickliness

The 10th Hussars was 1st,
 „ 8th Regiment „ 2d,
 „ 22d „ „ 3d,
 „ 78th „ „ 4th,
 „ 86th „ „ 5th,
 „ 60th „ „ 6th.

Mortality

The 22d Regiment was 1st,
 „ 60th „ „ 2d,
 „ 8th „ „ 3d,
 „ 86th „ „ 4th,
 „ 78th „ „ 5th,
 „ 10th Hussars „ 6th.

10th Hussars.—The mortality of the 10th Hussars has been always small in proportion to its sick. It has been stationed at Kirkee since September 1846, the month after its arrival in the

command. Betwixt August 1846 and September 1847, it lost thirteen men, three of them from cholera during, and on the conclusion of, its march from Panwell. It lost seventeen the second year, ending March 1848, and only nine last year; yet, while the admissions for the whole command are 175 per cent. of the strength, the admissions for the 10th Hussars are 224.

8th Regiment.—The Eighth Regiment, too, arrived in August 1846, and reached Poona on the 3d September. The left wing was sent to Colaba in February 1848, and to Kurrachee on the 29th September; the right wing being also moved to the same station from Poona after two years' service there. Exposed hitherto to no epidemic or pestilential sickness, though the left wing suffered, as all corps suffer at Colaba, the men of the 8th have sounder constitutions, and less predisposition to disease than any other Queen's troops in the command. From August 1846 to March 1847 this corps lost fifteen men; next year, ending March 1848, only thirteen; and last year twenty-nine, eight of them in the left wing at Colaba.

22d Regiment.—The 22d Regiment, on the other hand, during seven years' residence in this Presidency, has been much exposed to vicissitudes of climate and hard field service in Scinde and in the Deccan, bringing in their train frequent and formidable visitations of fever, bowel complaints, hepatitis, and *cholera morbus*, and entailing, on a large proportion of the men, impaired health, or predisposition to febrile and visceral disease.

60th Regiment.—The 60th Rifle Regiment was stationed at Poona, from its first arrival in October 1845 to 29th January 1846, and was then moved to Kurrachee. After two years and eight months' residence there, it went on service to Moultan and the Punjaub on the 6th October last, and remained quartered for the monsoon at Peshawur. From October 1845 to March 1846 the deaths were nine in this corps, and from 1st April to 5th June, nine more. On the 6th June a fatal case of cholera occurred; on the 15th, seventeen more, and three of apoplexy; on the 16th, 17th, and from the 17th to the 20th, four to eight daily, all fatal. There were four also on the 23d, three on the 26th, and one on the 27th. Of 112 fatal cases in the 60th Regiment that year, the first of its service in the Presidency, sixty-eight from cholera and six from apoplexy occurred betwixt the 6th and 27th of June. Last year, ending in March, the mortality of the corps was twenty-two in hospital. This year it is thirty-two in hospital, ten in action, and two accidental;—forty-four in all.

78th Regiment.—The 78th and 86th Regiments arrived from England in August 1842. The first was sent to Poona for twelve months, and then to Kurrachee. There, in the quarter ending December 1843, it lost forty-three men, chiefly from fever

and dysentery. In the third quarter of 1844, the regiment, divided betwixt Sukkur and Hydrabad, on the Indus, lost 231 men,—141 from remittent fever, the remainder from bowel complaints chiefly. In the last quarter of 1845, the 78th had been removed to Bombay, and lost 276 men, the predominant cause being, not fever, as in the third quarter, but acute and chronic dysentery, to which 244 of the deaths were referred, and six more to diarrœhea, leaving only sixteen for all other diseases. The regiment has been stationed at Belgaum since December 1847, and has there enjoyed excellent health.

86th Regiment.—On its arrival in August 1846, the 86th Regiment was divided betwixt Fort George's barracks in Bombay and Colaba; of seventy-nine fatal cases in the Fort George wing in August and September, seventy; of eleven in the Colaba wing, five were referred to cholera. We find the regiment at Belgaum, by the end of the next quarter, with sixteen deaths there, and four at Colaba for the three months. It enjoyed good health at Belgaum to the beginning of 1844, when it was moved to Kurrachee and Hydrabad, and during its first quarter there lost forty-five men, in thirteen of whom death was ascribed to coup de soleil, and in five to apoplexy. The regiment continued in Scinde till December 1846, and in May encountered a terrific onslaught of epidemic cholera, which, betwixt 14th May and 30th June, carried off 235 soldiers of that corps, being within seven of the number of deaths for the whole quarter. The 86th was brought to Poona in January 1847, its left wing sent to Colaba on the 1st April, and the whole corps to Deesa in December. The regiment has been very healthy since its return from Kurrachee, with exception of the left wing at Colaba, which then lost in 1847–48, twenty-three men, while the right at Poona lost three only.

Here are the relative proportions of admissions and deaths for every month and quarter of the year.

Quarters.	Months.	Admitted.	Died.	Monthly Rate per 1000	
				to total Admissions.	to total Deaths.
1st	{ April,	823	18	74	78
	{ May,	781	7	71	42
	{ June,	981	17	89	108
	{ Total,	2585	37	234	224
2d	{ July	1250	17	114	103
	{ August,	978	15	89	91
	{ September,	852	13	77	78
	{ Total,	3080	45	280	272

Quarters.	Months.	Admissions.	Died.	Monthly Rates per 1000	
				to the whole Admissions.	to the whole Deaths.
3d	October,	868	12	78	73
	November,	975	11	89	67
	December,	901	17	82	103
	Total,	2744	40	249	242
4th	January,	716	12	65	73
	February,	867	13	79	78
	March,	1014	18	92	109
	Total,	2597	43	236	261
Total,		11,006	165		
Monthly Average,		917	13 $\frac{3}{4}$		

In Sickliness then

July	stands	1st.
March		2d.
June	}	3d.
August		
November		
December		4th.
February		5th.
October		6th.
September		7th.
April		8th.
May		9th.
January		10th.

In Mortality

March		1st.
June	}	2d.
July		
December		
August		3d.
April	}	4th
September		
February		
January	}	5th.
October		
November		
May		7th.

Classes of Diseases.—Of 11,006 admissions in the whole command were returned under,

	Per 1000 of the whole Admissions.		And Died.	Per 1000 of the whole Deaths.		
Fevers,	2664 i.	e. 242	29 i.	e. 176		
Eruptive Fevers,	10	1	1	6		
Diseases of the	{	Stomach and bowels	2054	189	74	448
		Liver,	541	49	25	151
		Lungs,	606	55	15	91
		Brain,	104	9	7	42
Dropsics,	3	27	2	12		
Rheumatic affections,	735	67	3	18		
Venereal diseases,	2020	183	2	12		
Abscess and ulcers,	786	71	0	0		
Wounds and injuries,	688	63	1	6		
Punishment,	11	1	0	0		
Morbi oculorum,	274	25	0	0		
„ cutis,	31	2.8	0	0		
Other diseases,	579	53	6	36		

From this table it appears that fevers have been less—stomach and bowel complaints and diseases of the lungs more prevalent and more fatal.—Hepatitis more prevalent but less fatal than the same classes of diseases last year.

Fevers.—Of the fevers,

730	were admitted, and	1	died under	Intermittent,
159	... ..	8	...	Remittent,
1771	... ..	18	...	Continued,
2	... ..	2	...	Typhus,
2	... ..	„	...	Ephemera.
<hr/> 2664		<hr/> 29		

Of the fatal cases, three occurred in the 10th Hussars, eight in the 8th, seven in the 22d, seven in the 60th, and four in the 86th Regiment.

Intermittent.—Of 730 cases of ague, 498 were referred to the quotidian, 232 to the tertian type, one case only terminated fatally in the 60th Rifles at Kurrachee, being complicated with abscess of the liver. That corps admitted there, from April to September, 35, and in the field from October to March, 155 cases. After being encamped about ten days at Roree, intermittent fever attacked the battalion like an epidemic. Sixty-eight cases occurred in November, the greater number within a few days, with five cases of remittent, and nineteen of common continued fever, but none fatal. Almost all the intermittents were severe, with much headach, often persisting through the intervals of the paroxysms. Bleeding by means of leeches applied to the temples was followed by great relief; and purgatives, sometimes also antimonials, were given before the administration of quinine. A moderate allowance of wine assisted much the convalescence. But what contributed most to the recovery was the removal of the patients from Roree across the river to Sukkur, and the shelter of a good roof in a large airy bungalow there. The men at once expressed the relief they felt from the change. Intermittents continued to recur on the march, and a few cases had to be sent to Kurrachee from Mooltan after its capture. In a few men of the 22d Regiment intermittents were complicated with affections of the liver and spleen, increasing their obstinacy, and causing relapses. This disease is not considered endemic at Belgaum, the cases that occurred there being relapses of attacks, first experienced in Scinde and Colaba.

Remittent.—Of 159 admissions for remittent fever, two occurred in the 8th Regiment left wing, one fatal; 117 in the 60th, five fatal; 31 in the 78th; and 115, twelve fatal, in the 86th.

60th on Field Service.—Several of the cases in the 60th were very severe, and required to be left behind at Roree. The five fatal cases all occurred on the campaign; the first terminated the

night before reaching Sukkur, after six days' illness, the skin having become intensely yellow the two last days. Two of the fatal cases were ascribed to fatigue and exposure to the sun, in the pursuit of the Scikh army, after the battle of Gujerat. The necessity of carrying on these poor men, in the heat of the day, rendered treatment of no avail. In the 4th case, which occurred on the banks of the Jhelum, to fever of three days' duration were added, first pneumonia, then peritonitis. The fifth and last patient was admitted, in camp at Jumrood, on the 30th March, and appeared next morning to be doing well, but died suddenly the same afternoon. No *post mortem* examination of any of these cases could be made.

78th, Belgaum.—Thirty-one cases of remittent fever occurred in the 78th at Belgaum, chiefly in June and the beginning of July, October, and the beginning of November. The attacked were generally young men, exposing themselves to the sun; the early symptoms, headach, nausea, anorexia, and sensation of burning heat of skin. After admission the headach increased, chiefly in front, with pain in the eyes, slightly jaundiced conjunctiva, nausea, sometimes vomiting, a yellow loaded tongue, dry hot skin, urgent thirst, and oppressed pulse, seldom above 78 in number. Three severe cases required general bleeding. In all the others the urgent symptoms disappeared, in two or three days, under the use of an emetic on admission; leeches, purgatives, and the infusion of chiretta during convalescence, which was in all very rapid.

Continued.—Under continued fever are returned 1771 admissions and 18 deaths; but a more accurate diagnosis would have placed many of these under other heads, since the dissection reports of the fatal cases show that, in different cases, were found hepatic abscess, ulceration of mucous membranes, abscess in the brain, tumour under the same organ, tubercles in the lungs, and similar lesions. Dr Thom gives the name of typhus to two fatal cases.

Prevalence and fatality of Fever at different stations.

	The strength was	Admissions for Fevers.	Deaths from Fevers.	Admissions to strength per 1000.	Deaths to admissions
During the year					
At Colaba, . . .	599	361	7	603	19
„ Poona, . . .	1109	750	5	676	6·7
„ Kirkee, . . .	690	279	3	400	11
„ Belgaum, . . .	1098	190	0	173	0
„ Deesa, . . .	1141	471	4	413	8·5
„ Kurrachee, . .	1098	335	4	305	12
„ Hydrabad, . .	66	46	1	696	22
„ Field service, .	494	227	5	456	22
„ whole command,	6295	2661	29	423	11
Of the cases at Colaba were					
Duty-men, . . .	514	319	7	621	22
Invalids, . . .	85	42	0	494	0

Fevers have been in the whole

Command,	25	} per 1000 less preva- lent	Belgaum, .	16	} per 1000 more pre- valent
Colaba, .	45		Deesa, .	14	
Kirkec, .	94		Kurrachee,	49	
Poona, .	48				
than last year.	And at				
Kirkee, .	4	} per 1000 less fatal, but in the whole	Command,	1.22	} more fatal.
Belgaum, .	6		Colaba, .	6	
Deesa, .	7.5		Poona, .	4	
Kurrachee,	8.4				

Small-pox.—Under eruptive fevers appear 10 admissions for small-pox, 4 in the 60th Rifles (besides one remaining at the beginning of the year), 2 at Kurrachee and 2 in the field; 1 at Belgaum; 1 in the 22d at Poona; and 1 at Deesa. The fatal case occurred in the 60th in a man who had never been vaccinated, and had escaped observation, when he was brought back after desertion, as well as on the inspection of the corps, on embarkation for this command. A second case in the 60th was severe, though not fatal. The rest, in this and other corps, were modified and mild, all the men bearing marks of vaccination.

Diseases of the Stomach and Bowels.—To diseases of the stomach and bowels have been referred 2054 admissions and 74 deaths.

Of these diseases

	The strength was	Admissions.	Deaths.	Admissions to strength per 1000.	Deaths to admissions.
At Colaba, .	599	230	18	384	78
„ Poona, .	1109	355	12	320	34
„ Kirkee, .	690	332	2	481	6
„ Belgaum, .	1098	254	11	231	43
„ Deesa, .	1141	321	12	281	37
„ Kurrachee, .	1098	426	13	388	31
„ Hydrabad, .	66	39	0	590	0
„ Field service,	494	97	5	196	52
„ Command .	6295	2054	74*	326	31
Of the	599 at Colaba were				
Duty-men, .	514	190	12	369	63
Invalids, .	85	40	6	471	150

At Kirkee the proportion of admissions is 69, at Colaba 14 per 1000 smaller than last year; at every other station, excepting only Kurrachee for deaths, the proportion of admissions, as well as deaths, is greater, being an increase in the

* In these returns, copied from the official in Bombay, 74 in some, 73 in others, are given as the number of cases fatal from bowel complaints. I have adopted 74.

	Admissions.	Deaths.	
Command of	41	5	} per 1000 of the strength.
Colaba,	14	30·8	
Poona,	43	9·8	
Belgaum,	4	1	
Deesa,	67	2·8	
Kurrachee,	73	...	

And a decrease at Kurrachee of deaths only 14·7.

Stomach and Bowel Complaints compared with Fevers.—The comparative prevalence and mortality of fevers and bowel complaints at different stations, for the period embraced by the sick returns may be thus shown.

Stations.	Fevers.	Mortality.	Bowel Complaints.	Mortality.
	Order of prevalence.		Order of prevalence.	
Colaba,	3	3	3	1
Poona,	2	6	4	5
Kirkee,	6	4	1	7
Belgaum,	8	8	6	3
Dcesa,	5	5	5	4
Kurrachee,	7	7	2	6
Hydrabad,	1	2	8	8
Field service,	4	1	7	2

It appears thus that fevers have been less prevalent and less fatal at Belgaum, more prevalent at Hydrabad, and more fatal on field service than in any other parts of the command; that bowel complaints have been most prevalent at Kirkee, most fatal at Colaba; and least prevalent, as well as least fatal, at Hydrabad.

Specific Stomach and Bowel Complaints.—To stomach and bowel complaints have been referred

	Admitted.	Died
Peritonitis,	6	3
Gastritis,	4	...
Enteritis,	6	...
Dyspepsia,	339	...
Acute dysentery,	529	47
Chronic „	149	19
Diarrhoea,	955	5
Cholera morbus,	7	...
Constipation,	95	...
Colic,	163	...
Total,	2054	74

Peritonitis.—Of the three fatal cases of peritonitis, two occurred in the 22d Regiment at Bombay and Kurrachee, and one

in the 8th, also at Kurrachee ; the three of recovery at Belgaum and Deesa.

Dysentery in different Corps.—Of 678 cases of dysentery, acute and chronic, 66, or nearly one-tenth, terminated fatally. Of that number

The 10th Hussars admitted	76	and lost	3
„ 8th Regiment „	152	„	4
„ 22d „ „	192	„	27
„ 60th „ „	110	„	14
„ 78th „ „	65	„	10
„ 86th „ „	76	„	8
Total,		671	66

The mortality has thus varied in different corps from one in seven and six and a-half of the admissions in the 22d and 78th, to one in 38 in the 8th Regiment.

8th Regiment.—During the first eight months of its Indian service, ending 31st March 1847, fifteen cases of dysentery occurred, and two died, in the 8th. The second year, 50 occurred, and one died ; this, the third year, 155 occurred, and four died,—two at head quarters, two in the left wing, Colaba.

22d Regiment, Colaba.—This disease was extremely prevalent and fatal in the left wing of the 22d Regiment at Colaba, from October to the end of January ; and in that short interval, out of 56 admitted, eleven men died.

78th, Belgaum.—At Belgaum, 49 men were the subjects of 77 attacks,—46 acute, 31 chronic. Twelve of the acute cases took place in June, eight in August, 24, or more than one-half, in May, June, and July.

86th, Deesa.—At Deesa the disease was most prevalent in September, October, and November, a period of the year when, at that station, the ground and atmosphere are humid, and the nights begin to be sharp and keenly cold, and the surface of the body, after being heated and relaxed during the day, is suddenly exposed to cold winds at night. Of 84 admitted at Deesa, eight died,—four being old soldiers who had come out with the regiment in 1842, four recruits of last year. The first were all chronic cases ; and in three of them large abscesses were found in the right lobe of the liver ; in the fourth, this organ was softened, friable, and of a nutmeg colour. In the four recruits, again, the disease was acute ; only one had slight signs of hepatic disease ; the lining membrane of the large intestines was highly injected, thickened, friable, and marked by patches of abrasion, with an inflamed appearance of the Peyerian glands ; while in the old soldier it was thick like felt, less vascular, interspersed with old, circular, deep-seated ulcers, and the glands of Peyer were round and tumid, but

hardly red. Two only of 27 fatal cases in the 22d Regiment occurred in recruits. Ulceration of the large intestines was found in all; and in four this was combined with hepatic abscess.

60th, Kurrachee and the Field.—Last year, at Kurrachee, the 60th had 176 cases of dysentery and diarrhœa, ten of them fatal. This year, six months in Kurrachee, and six in the field, they had 223, and fourteen fatal. But of the deaths, three only occurred in the field, and two of these were attacked at Sukkur, where they had been left behind with fever, leaving only one fatal case in the field, in a man otherwise diseased and hectic. Six of the fatal cases were complicated with hepatic abscess. From the paucity of fevers, pulmonic and bowel complaints, in the 60th during the second half of the year, Dr Boyes considers the active duties of field service to have exerted a prophylactic influence against these diseases.

78th, Belgaum.—Seven fatal cases from dysentery, one returned under diarrhœa occurred at Belgaum in June, four in July, September, November, and March. In three, hepatic abscess was found on dissection, in one tubercles, in one inflammation, and in two enlargement of the liver, leaving two only without complication.

Diarrhœa in the 22d.—Diarrhœa like dysentery was most prevalent in the south-west monsoon, from June to October. In a fatal case returned under rheumatism in the 22d Regiment, chronic diarrhœa, which the patient had concealed, appeared to have been the cause of death. The spleen was found much enlarged, the coats of the large intestines thickened, and internally granular.

86th, at Deesa.—The worst cases of diarrhœa, and three-fourths of the whole admissions at Deesa, occurred betwixt June and November. The four fatal cases in the 86th were connected with hepatic disease, and two with a scorbutic diathesis. In one were found patches of congested vessels in the mucous membrane of the jejunum, and small points of ulceration in the cæcum and colon; in another, ecchymosed spots in the small, and ulcerated spots in the large, intestines, with one on the peritoneal covering of the rectum; in a third, purplish spots on the convolutions of the ileum, much resembling the ecchymosed patches that appear on the legs of scorbutic patients. There was effusion of serum tinged with blood in the right side of the chest; and in the last, as well as this case, the blood was watery from deficiency of fibrine. In the fourth fatal case, the mucous lining of the stomach and duodenum was thickened and vascular, with abraded and ecchymosed patches. The large intestines were also thickened, and studded internally, with similar patches and ulcerations. The kidneys were large, pale, soft, and flabby, presenting the appearance of Bright's disease.

Hæmatemesis.—Hæmatemesis was brought on by a soldier of the 86th Regiment swallowing an execrable compound, sold in the Deesa Bazaar by the name of Eau-de-Cologne. A bottle of this, purchased for four annas (sixpence), had been divided into four fiery drafts, and swallowed, diluted with water. He was brought to hospital, sallow, bloated, and vomiting up grumous blood. The *Tinctura Muriatis Ferri* was exhibited, and he recovered.

Cholera.—Seven admissions for cholera appear in the returns, three at Colaba, one Poona, one Belgaum, and two Decsa; but there have been no deaths from that disease during the year.

Hepatitis in Different Corps.

To Acute Hepatitis are referred,	253 admissions.	12 deaths.
„ Chronic	248 ...	13 ...
„ Icterus	40 ...	... ..
	<hr/>	<hr/>
Total,	541 ...	25 ...

Of these occurred in the

10th Hussars, . . .	65 admissions,	2 deaths.
8th Foot, . . .	116 . .	3 ...
22d	120 ...	5 ...
60th	71 ...	5 ...
78th	75 ...	2 ...
86th	34 ...	9 ...

10th Hussars.—In almost all the fatal cases were found hepatic abscesses. The two in the 10th Hussars had been opened by incision before death; but in both other abscesses existed beyond reach of the knife.

86th.—In a case in the 86th, fluctuation was perceptible in the right hypochondrium; but the abscess being deep-seated, and the man in a sinking state from diarrhœa, no attempt was made to empty it. A man of the Horse Artillery, with a large abscess projecting under the right false ribs, was sent to the 86th hospital, and about two pints of pus taken off by a trocar; but the sudden removal of the support given to the circulation by the contents of the abscess was too much for him, and he died. A small portion only of the left lobe had been left to perform the function of the whole organ.

8th.—Three fatal cases, or one 1 to 39 of the admissions occurred in the 8th Regiment. One of them had been treated for dysentery in January 1848, and for fever in January and February 1849. During convalescence from the last attack, he was seized with rigors and signs of hepatic inflammation, and died in sixteen days. Three pints of purulent matter were found within five lines of the surface of the liver, and cicatrices and irregularities of surface, from former ulceration, in the stomach and large in-

testines. In the 22d Regiment, the preceding year, there were only 47 cases of hepatitis, and one fatal. This year there are 114 and five fatal.

38 cases and 4 deaths at Colaba.

53 ... 1 ... Poona.

14 Kurrachee.

9 Queen's Depôt.

In all the fatal cases, excepting one, abscess of the liver was found: in that case the gland was enlarged, and the large intestines extensively ulcerated. Together with hepatic abscess, in another case was found aneurism of the aorta which had not been suspected during life. The 60th had last year 108, and this year only 71 admissions, but five deaths.

36 occurred and 3 died at Kurrachee.

27 ,, 0 ,, Head Quarters.

9 ,, 2 ,, Invalid Depôt.

None that could be considered severe came under treatment in the field till towards the end of the campaign.

78th.—At Belgaum, 49 individuals have been the subjects of hepatitis; of these, 18 occurred in 700 men who had been about three years in India, 31 in about 450 men of longer residence. The two men who died, and one officer of the 78th, had hepatic abscess, which in one of the men had pointed on the back, been opened by incision a fortnight before death, and large quantities of matter discharged. In the other fatal case large quantities of grumous blood had passed before death from an abscess in the liver, and the large intestines are described as gangrenous.

86th.—The disease was unusually severe in the 86th Regiment, and the cause of very nearly one-third of the mortality. Of 94 admissions, including six of icterus, nine died, seven with and two without hepatic abscess. In this, too, as in other corps, many attacks of dysentery and diarrhœa were complicated with liver diseases. Four of diarrhœa had deep-seated abscess, and four mere enlargement, schirrous hardening or nutmeg discoloration of that gland. The passive formation of matter in the centre of the liver without much pain was the usual character of the disease in the hot and humid months of the monsoon; while the acute attacks, attended by febrile excitement and pain in the side, were peculiar to the months of January and February, when the air was cold and dry, and sharp east winds prevailed. The abscesses were generally confined to the right lobe, and in two-thirds of the cases were pointing through the diaphragm towards the lungs, in which direction one had actually burst, partly into the thoracic cavity, partly into the lungs. In two instances the abscesses were pointing through the concave surface of the liver towards the abdominal cavity, and one appears to have just given way behind the pyloric extremity of the stomach.

In one case the abscess burst into the pericardium. The man in whom this termination took place had been several years in India, and had undergone several attacks of hepatitis. In the last of these he was suddenly seized with diarrhœa, prostration of strength, and occasional fits of dyspnœa; at one time he gasped for breath, and the next visit was comparatively free from suffering. He complained, however, of pain in the cardiac region, and the functions of the heart were disturbed. After being quiet in bed he sat up, and in an instant dropped back dead.

The pericardium was found to be enormously distended with greyish purulent matter tinged with blood, which, as often as it was removed from the pericardial sac, was replaced by a fresh gush from an opening through the diaphragm, of a large abscess, containing a pint of pus in the right lobe of the liver, which communicated with the pericardium by a passage through the mediastinum, large enough to admit the finger. The heart was covered with flakes of coagulable lymph.

Lungs.—To diseases of the lungs are referred o.—

			Admissions.	Deaths.
Pneumonia,	...	...	33	3
Pleuritis,	...	...	11	„
Bronchitis,	...	...	16	„
Hæmoptysis,	...	...	11	1
Phthisis pulm.,	...	...	11	9
Acute catarrh,	...	...	408	1
Chronic,	...	...	98	1
Asthma,	...	...	3	„
Dyspnœa,	...	...	10	„
Total,			601*	15

In different Corps.—Of these numbers were in the—

			Admissions.	Deaths.
10th Hussars,	...	...	118	1
8th Regiment,	...	...	173	8
22d „	...	...	40	1
60th „	...	...	124	2
78th „	...	...	38	3
86th „	...	...	113	1
			606	16

Catarrh.—Catarrhal complaints were chiefly prevalent in the colder months of the year. Of 94 admissions at Deesa, 63 occurred in December and January, and only two in April and May; the first the coldest, and the second the hottest months there. Rheumatic pains were a common concomitant, and the

* Five admissions have been inadvertently left out of this return, the number being 606, as stated under the *admissions* in different corps.

mucous membranes of the alimentary canal sometimes participated in the irritation of the air passages.

Pneumonia, 8th.—The fatal cases of pneumonia, three in number, all occurred in the 8th Regiment, in men whose constitutions had been impaired by other diseases. In addition to grey hepatization of their substance lymph, effused on the pleura, was found in one, with traces of previous inflammation in the liver; and in another numerous small abscesses, with one large cavity and crude tubercles in the lungs.

Phthisis Pulmonalis.—Eleven admissions only and nine deaths are referred to *phthisis pulmonalis*. Four of the fatal cases occurred in the 8th Regiment, two in the 78th, one in the 10th Hussars, 60th, and 86th, respectively. During the last three years of the 8th Regiment's home service, thirteen casualties are returned under phthisis from an average strength little above 800. In the same period of Indian service the deaths from tubercles amount to nine, while the average strength is 1100. Two remained at the beginning of this year in the 8th Regiment, and four were admitted; of these four died in hospital, one in quarters, and one was invalided. In four the disease appeared due to hereditary predisposition. In one case the mesenteric glands were enlarged, and the seat of small semitransparent tubercles; and there were several well-defined ulcers in the small intestines.

60th.—The pulmonic complaints in the 60th were few and of little importance; one man died of hæmoptysis, one of phthisis, the former combined with *delirium tremens*. A fatal case returned under hydrothorax more properly belonged to phthisis. Seventy-five cases of catarrh occurred, the first six months at Kurrachee, 40 the second six in the field.

Brain and Nervous System.—To diseases of the brain, or rather nervous system, have been referred,—

			Admissions.		Deaths.
Phrenitis,	...	...	4	...	1
Cephalalgia,	...	...	11	...	0
Apoplexy,	...	...	7	...	3
Paralysis,	...	...	12	...	1
Epilepsia,	...	...	18	...	1
Amentia,	...	...	15	...	0
Mania,	...	...	2	...	0
Delirium tremens,	...	...	33	...	1
Vertigo,	...	...	2	...	0
Total,			104	...	7

Delirium Tremens.—Of 33 admissions for *delirium tremens*, nineteen, or above one-half, occurred in the 8th Regiment; but these were confined to a few individuals, the victims of habitual drunkenness. The fatal case occurred at Colaba, in a colour-

sergeant of superior attainments, who could not give up the destructive habit, though he had been previously three times under treatment for the disease. The fourth attack terminated fatally with an epileptic fit, four days after his admission. This is the only fatal case out of 33 attacked in the command.

Tetanus.—In the same corps at Colaba occurred a fatal case of tetanus. The patient, 23 years old, when admitted, 27th July, had laboured some days under severe neuralgic pains of the left eye, with dimness of vision, the lower jaw was firmly closed on the right, but allowed a teaspoon to pass on the left side, towards which the lips were drawn; there was partial ptosis of the eyelid, stiffness of the sternomastoid, and puffiness of the left masseter muscle, but no loss of sensation. He had received no injury, and could assign no cause. Leeches, cupping, calomel, opium, and various other remedies produced temporary relief only, and he died after several attacks of convulsions on the 11th August. The brain was found congested; there were patches of soft lymph on the hemispheres; three drachms of reddish serum were contained within the vertebral cavity, and vascularity and lymph were observed within the vertebral cavity on the spinal cord.

Apoplexy.—Of six cases of apoplexy three terminated fatally, in the 22d, 78th, and 86th Regiments. In the first of these the man went to bed in perfect health, and awoke at two in the morning, complaining of pain in his throat. At daylight he was found to be insensible, and taken to hospital, where he died in an hour. Slight congestion of its vessels was the only morbid appearance detected by a careful inspection of the brain.

78th Regiment.—The 78th case occurred in a man 26 years old, previously in good health, who came into hospital on the 3d May, with severe headach, of some days' duration, heat of skin and foul tongue. The headach continued, and a month after admission it was observed that he had slight ptosis of the left upper eyelid, contraction of the left pupil, while the right was rather dilated. On the 12th June he was seized in hospital with coma, from which he could be temporarily roused, but quickly relapsed; pupils greatly dilated and sluggish; breathing laborious, incontinence of urine; and apparently pain on pressure over the whole abdomen, more particularly in the right hypochondrium; partial paralysis of lower limbs; pulse weak and sluggish; tongue slightly furred. After leeches, a blister and purgatives had been exhibited, he was quite sensible. On the 14th, he had a return of all the symptoms, though less severe. On the 16th, with partial paralysis of the lower limbs, his mental faculties were clear, and he was able to sit up in bed. After the application of a blister to the sacrum, involuntary starting of both legs came on, yet he improved to the 21st, when he had another apoplectic seizure, and died on the 23d. The *dura mater* was found thickened, and

firmly adherent to the right parietal bone, the brain congested with fluid in the lateral ventricle, base, and spinal canal, the right *thalamus opticus*, and *corpora striata* much softened, the left being healthy, adhesion of the pleura to the lungs, which were otherwise healthy, and of the pericardium to the heart, the ventricles enlarged, but valves sound. The third case occurred in an Irish recruit, who was admitted at Deesa, with head symptoms, at first resembling those of the prevalent fever, but suddenly terminating in serous effusion. The brain was found congested and softened, with two ounces of fluid in the lateral ventricles and base.

86th Regiment.—The following interesting case of recovery from *coup-de-soleil* occurred at Deesa in a man who had been treated for *delirium tremens*, two years previously. He had been at morning parade, and was brought to hospital about 11 A.M., on the 29th March, in a state of perfect insensibility, with his eyes open, fixed, and insensible to light, and the pupils not contracted; the breathing stertorous, with low moaning; the left pulse thready, sometimes scarcely preceptible; the right slow and small; face pale; head hot, with occasional convulsive shivering of the muscles of the arms and legs. He was placed under a punkah, his head covered with spirituous lotions. Under the punkah, the thermometer fell to 64° from 98° in the shade. Two drops of croton oil and a turpentine enema were exhibited. At one P.M., the pulse became quicker, signs of returning consciousness could be traced, his face was pale, and his head, from the continued evaporation, felt as if it had been covered with ice. At two P.M., the stertorous breathing had ceased, and, on being spoken to loudly, he moved his eyes in a vacant manner towards the bystanders. Soon after, he turned on his side, and fell into a kind of half-sleep. From this time he daily recovered.*

Rheumatic Complaints.—To rheumatic complaints are referred 725 admissions and three deaths.

Acute rheumatism,	...	...	243
Chronic,	...	...	459
Lumbago,	...	...	21
Odontalgia,	...	...	2

Rheumatism is often of syphilitic origin, and renders many men inefficient. At Belgaum, 161 cases, being 73 fewer than last year, occurred in 92 men, 69 of them relapses; 108 were considered of venereal origin.

22d Regiment.—Of three fatal cases, one occurred in the 22d Regiment, two in the 78th. The cause of death in the first was chronic diarrhœa, which the patient had concealed when under treatment for syphilitic rheumatism, until within a few days of his death. Both the cases in the 78th occurred at the invalid dépôt. One of

* See the sequel of this case, under Paralysis in Part iv.

them had been treated for primary venereal symptoms without mercury, followed by extensive suppuration in left groin, and rheumatic pains, which wore out his strength. The other had been invalided from his corps, not for this disease, but for chronic dysentery, with enlarged liver and painful distension of the abdomen.

Venereal Diseases.—Venereal diseases are a sore evil in this presidency. They furnish above one-sixth of the whole admissions, swell the sick list, deprive the ranks of able-bodied men, and ruin the constitutions of many, rendering them unfit for service.

To this class are referred

Primary Ulcers,	.	694
Bubo, simple and syphilitic,		500
Phimosis and Paraphimosis,	.	7
Gonorrhœa, .		409
Hernia humoralis, .	.	188
Strictura, .	.	10
Secondary syphilis, .	.	209
Cachexia syphiloidea, .	.	3
Total,		2020

Strictura, 60th.—One case of stricture and one of *cachexia syphiloidea* terminated fatally.

The case of stricture occurred in the 60th Regiment on the line of march in pursuit of the enemy to the Jhelum. The man, though suffering for several years from bad stricture of the urethra, had not complained of it since 1844, when on detachment in Ireland he had retention of urine, which was relieved by the introduction of a very small catheter. On the 26th March last he was again attacked with total retention,—no catheter in camp, the smallest to be procured being No. 6, would pass. Fomentations, purgatives, enemata, antispasmodics, and opiates failed in producing any flow of urine until late in the evening, when, after repeated doses of morphia, it began to dribble, and several times he voided it in the quantity of a tablespoonful with considerable relief. His stomach was then emptied by an emetic, and full vomiting encouraged by warm water, after which he passed a little more urine and felt much easier. He was left with directions to have a few more doses of morphine at intervals, until the urine should flow more freely, or he should fall asleep. He slept from 2 P.M. to 5. He then awoke, got up, and passed about a pint of urine; spoke cheerfully to the men about him, and lay down again. On visiting him about an hour and a half afterwards, Dr Boyes found him comatose, and, fearing it might be the effect of opiates, though they had not been repeated, the stomach was washed out by the pump, and stimulants introduced. The skin continued warm, and the pulse of great strength; but

when the tents were struck for the day's march, he died, while being placed in a dooly.

The fatal case returned under *cachexia syphiloidea* occurred in the 78th Regiment in a scrofulous subject, who laboured also under dysentery and diseased liver.

Syphilis Primary.—Of 216 cases of primary syphilis in the 78th Regiment, 68 were treated by mercury and local applications, and 17 cases of secondary disease followed; while in 148 treated by local applications only, 27 secondary diseases or rheumatism followed; 78 individuals, furnish 123 cases of secondary syphilis, 103 additional cases under rheumatism had a syphilitic origin, many of them being relapses. In whatever way the primary symptoms may be treated, secondary constitutional symptoms, as pains of the large joints, tibial periostitis, and cutaneous eruptions, are very numerous; secondary syphilitic ulcers of the skin have been less frequent. Ulcers of the palate and tonsils occasional; ulceration and desquamation of the bones of the nose in one instance. Of 42 cases of ophthalmia treated in the 78th, 11 were of syphilitic iritis. Sixteen men of that corps were invalided for secondary syphilis.

Ulcers and Abscesses, Wounds and Injuries.—Under ulcers, phlegmon, paronychia, and fistula, have been returned 786; and under wounds and injuries, 588 cases; comprising 24 gunshot wounds in the 60th Regiment, though the returns gave 34 from the re-admissions of ten men at Kurrachee; 23 occurred at Mooltan, and one at Goojerat; twenty were gunshot wounds, eighteen of the limbs, one of the pelvis, one of the face, four contused wounds. Few of them were of much importance.

Punishment.—Eleven men, that is, less than 2 per 1000 of the strength, have been subjected to corporal punishment during the year.

Ophthalmia and Cutaneous Diseases.—For ophthalmic diseases the admissions have been 274, and for cutaneous 72, including 41 of scabies in one corps.

Other Diseases.—Under other diseases are placed of

	Admissions.		Deaths.	
Cynanche tonsillaris, ...	90	...	...	...
„ parotidæa, ...	1	...	...	...
„ trachealis, ...	2	...	...	...
Morbi cordis et palpitatio, ...	61	...	...	...
Hæmorrhoids, ...	70	...	...	...
Splenitis, ...	66	...	1	...
Otitis, ...	44	...	...	...
Scrophula, ...	44	...	...	...
Scorbutus, ...	32	...	2	...
Erysipelas, ...	11	...	1	...
Dracunculus, ...	15	...	...	...

			Admissions.		Deaths.
Vermes,	...	...	14	...	...
Dysuria,	...	...	12	...	...
Verrucae,	...	...	12	...	...
Nephritis,	...	...	7	...	...
Neuralgia,	...	...	7	...	...
Dysecœa,	...	...	7	...	...
Morbus coxæ,	...	...	4	...	...
Hydrocele,	...	...	3	...	...

Epistaxis, two, and one respectively of hydrarthrus, nostalgia, contractura, enuresis, sarcocœle, calculus renalis, hernia, and prolapsus ani.

Among these are returned six fatal cases,—one of carditis in the 60th, splenitis in the 22d, erysipelas in the 8th, two of scorbutus in the 86th.

Erysipelas in the 8th Regiment.—Seven cases of erysipelas occurred in the 8th Regiment; that which terminated fatally was admitted on the 9th April;—the form was phlegmonous on the right side of the head and face. He died in ten days from the disease, in Dr Tice's opinion, spreading to the membranes of the brain, which were found injected with vascularity of its substance, and two ounces of serous effusion in the lateral ventricles. Part of one ramus of the maxillary bone was in a state of necrosis (caries).

Affections of the Heart.—Disordered action of the heart has been more prevalent in the 10th Hussars at Kirkee, and 78th Regiment at Belgaum, than in any other corps; fifteen cases occurred in the former, thirteen in the latter, six in the 60th, six in the 86th, and four in the 22d Regiment, one of the last fatal. How many of these were re-admissions during the year is not specified, excepting in the 78th Regiment, in which there were sixteen cases, including three in hospital at the beginning of the year; in eight individuals, one being twice, one thrice, and one five times under treatment. The symptoms were chiefly those of hypertrophy, sometimes of dilatation, rarely if in any case of valvular disease. Several of the 78th had previously been treated for rheumatic complaints. Four of them, and nine of the 10th Hussars, after being in hospital for months without improvement, were invalided or sent home for change of air.

Splenitis, 22d.—Of 66 cases returned under splenitis, one died in the 22d Regiment. Chronic enlargement of the spleen from fever is frequently obstinate and intractable. Dr Currie, on recommendation, made some of his patients eat daily from eight to twelve limes seasoned with pepper. Under this treatment in several cases the size of the organ appeared to be very rapidly reduced; in others it remained stationary. The person in whom occurred the fatal case, had repeatedly suffered from fever, as he

did on his last admission, with great emaciation, debility, epistaxis, and irritability of stomach. The spleen was four times its usual size, and the liver also enlarged.

Scorbutus.—Of 32 cases returned under scorbutus, 28 occurred at Deesa and two terminated fatally. They appeared chiefly after the hot and moist weather in October and November, and in men who had been long confined to hospital, especially invalids going to Bombay, weakly men out of hospital and grenadiers. Dr Thom considers these last as predisposed to scorbutus, cholera, and other humoral diseases, simply by their length and the greater force required in the circulating system than in men four or five inches shorter. In the two fatal cases the blood was found to be thin, dark, and incapable of coagulation; the cavities of the heart destitute of their usual fibrine, and sanguineous serum in the pleural and peritoneal cavities.

The supply of vegetables for the troops at Deesa is scanty and precarious in the dry season; but government having lately sanctioned the construction of two plunge-baths for the use of the Queen's Regiment stationed there, it is to be hoped a vegetable garden, to be cultivated by the men, and supplied with water from them, as recommended to the authorities, will be added and furnish a sufficient supply of vegetables at all seasons.

Epidemic Diseases.—There has been no epidemic disease among the Queen's troops during the year.

Influence of Age and Tropical Service.—The following tables give the numbers and proportions of admissions and deaths at different ages and lengths of service in India.

Of Age.

Age.	The strength was	Ratio per cent.				
		Admissions.	Deaths.	Admissions to strength.	Deaths to strength.	Deaths to admission.
Under 18 years,	62	139	0	224	0	0
18 to 20 „	647	994	8	153	1.23	$2\frac{5}{8}$
21 to 22 „	1500	2544	22	169	1.47	8.6
23 to 25 „	1693	3167	51	187	3.01	1.61
26 to 30 „	1624	2921	62	179	3.8	$2\frac{1}{2}$
31 to 35 „	609	950	12	156	$1\frac{2}{7}$	$1\frac{2}{3}$
36 to 40 „	143	270	8	188	$5\frac{5}{6}$	2.917
41 to 45 „	9	18	2	200	22.2	11.1
46 to 50 „	3	...	...	...	...	...
Age unknown,	5	3	...	60	...	...
Total,	6295	11006	165			

Service in India.

Age.	Strength.	Admissions.	Deaths.	Ratio per cent.		
				Admissions to strength.	Deaths to strength.	Deaths to admission.
Under 1 year,	513	1297	28	253	5.4	$2\frac{1}{5}$
1 to 2 „	734	3020	38	411	5.2	1.2
2 to 3 „	2746	3169	34	115	$1\frac{2}{5}$	1.47
3 to 4 „	611	762	20	124	3.2	2.6

Age.	Strength.	Admissions.	Deaths.	Ratio per cent.		
				Admissions to strength.	Deaths to strength.	Deaths to admission.
4 to 5	281	529	10	188	3·5	1·9
5 to 6	291	375	8	128	2·7	2·13
6 to 7	715	1201	16	168	2·2	1·3
7 to 8	679	1014	16	149	2·3	1·5
8 to 9	6	8	...	133	...	...
9 to 10	45	40	1	88	2·2	2·5
10 to 11	9	7	...	77	...	...
11 to 12	16	13	...	81	...	...
Above 12	12	10	3	83	2·5	30

From the first of these tables sickliness and mortality appear to have increased with age, from 20 to 45, though not progressively. The age 31 to 35 follows 18 to 20 in order of prevalence, and 21 to 23 in order of mortality. Men 26 to 30 also give fewer admissions than men 23 to 25. From 62 men under 18 years old there is no fatal case, but the proportion of admissions exceeds that at any other age.

The second table shows the large proportions of admissions and deaths that occur during the two first years of tropical service.

Every attention is given to the vaccination of the children of the Queen's troops, by government vaccinators, throughout the command; and to the re-vaccination of men who have unsatisfactory marks of that operation or of small-pox. A case of variola having appeared in a man of the 8th Regiment, who bore good marks of vaccination, Dr Tice became desirous of re-vaccinating all who had never been attacked with small-pox. The division of the regiment twice during the year prevented the completion of this design. Three hundred and sixty individuals only were subjected to the operation. Of these 195 men bore satisfactory marks of vaccination, and the operation succeeded in one only; 159 bore doubtful marks, and the operation succeeded in 140. In one officer, bearing satisfactory, and 5 bearing doubtful marks, the operation failed. It failed in 5 women, of whom 3 had satisfactory, and 2 doubtful marks, and succeeded in two children having doubtful marks. Altogether the operation failed in 218, and succeeded in 150 cases.



PART IV.

On the Health of the Queen's Troops serving in the Presidency of Bombay, from 1st April 1849 to 31st March 1850.

Changes of Stations, average Strength, and comparative Health of different Corps.—Her Majesty's 10th Hussars have remained at Kirkee, the 8th (King's) regiment at Kurrachee and Hydrabad, in Scinde, and the 86th at Deesa, the whole year. The 64th and 83d arrived from Ireland betwixt the 4th May and 14th July to relieve the 22d and first battalion of the 60th Rifles, which were transferred to the Bengal Presidency on the 1st November. The right wing of the 22d moved from Poona, first to Colaba, then to Kurrachee, to join the left, before proceeding to Bengal. The 64th and 83d went to Poona on their first arrival, and the 83d remained there at the end of the military year; but on the 24th–27th November, the 64th was moved in divisions to

Panwell to embark for Kurrachee, where they first arrived on the 6th Decemder. The 78th Highlanders, relieved by a European regiment of the Company's service, marched from Belgaum for Vingorla on the 6th and 7th November, and embarked the head quarters or left wing for Aden, the right wing for Colaba.

Of the	10th Hussars, Kirkee.	8th Regt., Kurrachee & Hydrabad.	22d Regt., Colaba and Kurrachee.	60th Regt., Peshavar & Kurrachee.	64th Regt. at sea, Poona, and Kurrachee.	78th Regt., Belgaum, Colaba, and Aden.	83d Regt. at sea and Poona.	86th Regiment, Deesa.	Total.
The aver. annual strength was	675	1069	665	592	1060	1073	1169	1145	7448
Average daily sick,	66	82	66	97	63	49	53	69	545
... <i>i. e.</i> per 1000, ..	98	76	99	164	59	46	45	60	91
Sick, 1st April 1849, ...	76	97	106	58	20	84	45	63	549
Admissions,	1556	2024	1566	1996	2161	1538	1466	1848	14155
... <i>i. e.</i> per 1000,	2305	1890	2355	3523	2038	1433	1254	1614	1900
Deaths in hospital,	19	34	40	36	76	31	62	27	325
<i>i. e.</i> p. 1000 of { strength, ...	28	32	60	61	72	29	53	23	44
{ admissions, ...	12	16	25	18	35	20	42	14	23
Invalids,	18	48	38	13	4	33	3	19	176
... <i>i. e.</i> per 1000,	27	45	86	22	4	31	3	17	23
Sick, 31st March 1850,	57	63	...	1	37	71	49	59	336
Deaths out of hospital, ...	...	4	1	1	4	2	1	4	16

In different corps, then the

Daily sick,	} varied from {	45 to	164	} per 1000 of the strength.
Total admissions,		125 to	3523	
Total deaths,		23 to	72	
Number invalided,		3 to	57	

And in order

of Sickliness,			of Mortality,		
The 60th Regiment was	1st		The 64th Regiment was	1st	
... 22d	2d		... 60th	...	2d
... 64th	3d		... 22d	...	3d
... 10th Hussars,	4th		... 83d	...	4th
... 8th Regiment,	5th		... 8th	..	5th
... 86th	6th		... 10th Hussars,		6th
... 78th	7th		... 78th Regiment,		7th
... 83d	8th		... 86th	...	8th

* 80 remained under treatment in the 22d and 183 in the 60th, when these corps were transferred to the Bengal Presidency, 31st October 1849.

The preceding table shews the comparative health of whole regiments dispersed, as the component parts of some were over distant parts of the command. The following exhibits the comparative salubrity of different stations.

Divisions.	Stations.	Corps.	Period at Stations.	Average strength for the period,	Annual average strength.	Admissions	Deaths.	Rates per 1000 of		
								Admission to strength.	Deaths to strength.	Deaths to Admiss.
Presidency, Colaba,	{	22d R. wing,	1st April to 31st Oct.	586	342	1108	30	3240	88	27
		78th do.	6th and 7th Nov. to 31st March.	547	228	485	10	2128	44	21
		Queen's Depot,	...	..	16	25	2	1560	125	80
		Total duty men,	...	...	586	1618	42	2761	72	26
		Invalids, ...	...	..	38	97	11	2553	289	113
		Total, ...	..	...	624	1715	53	2748	85	31
Poona, ...	{	64th Regt.,	18th May to 23d Nov....	1078	552	1444	45	2616	81	31
		83d do.	6th June to 31st March,	1170	960	1228	56	1279	58	46
		Poona station, ...	...	1512	2672	101	1767	67	38	
(Kirkee,	{	10th Hussars, .....	...	671	1545	18	2303	27	12	
		Poona division, ...	...	2183	4217	119	1932	55	28	
Southern, Belgaum,	{	78th Regt.,	1st April to 5th Nov.	1073	631	809	16	1282	25	20
Northern, Deesa,	{	86th do. ....	...	1145	1817	26	1518	22	14	
Scinde,	{	8th rt. wing,	...	579	786	16	1318	28	20	
		22d left wg.,	1st April to 31st Oct., ..	507	296	451	9	1524	30	20
		60th depôt,	1st to 31st, 24th - 27th	150	87	146	6	1655	69	41
		64th Regt.,	Nov. to 31st March,	1054	362	637	26	1740	72	41
		Total, .....	...	1324	2010	57	1520	43	28	
	Hydra- bad,	{	8th left wing, .....	...	489	1214	16	2483	33	13
		Total Scinde, .....	..	1813	3224	73	1794	40	23	

Divisions.	Stations.	Corps.	Period at stations.	Average strength for the period.	Average annual strength.	Admissions.	Deaths.	Rates per 1000 of		
								Admission to strength.	Deaths to strength.	Deaths to admiss.
Passage from Cork.	Pesha-war,	60th, 1st battalion.	1st April to 31st Oct.	849	495	1851	29	3739	58	16
	Aden,	78th left wing.	6th-7th Nov. to 31st Mar.	498	208	222	2	1067	10	9
	{	64th Regt.	1st April to 4th May & 2d June (a 47 d.)	1108	140	73	2	521	14	27
		83d do.	1st April to 8th May & 1st July (as 67 d.)	1147	209	227	5	1085	24	22
		Total,	.....	...	349	300	7	839	20	23
	Grand Total,			...	7448	14155	325	1899	44	23

By these and similar calculations made in Bombay during my service there, it appears that of every thousand men of the Queen's troops serving in

	In 1847-48.		In 1848-49.		In 1849-50.	
	Were admitted.	Died.	Admtd.	Died.	Admtd.	Died.
The Command,.....	1747	22	1748	26	1899	44
Presidency Division of Colaba,	1780	31	1978	53	2748	85
8th Regiment,	1526	10	1535	35		
22d "			2179	68	3240	88
28th "	1442	16				
78th "					2128	44
86th "	1996	84				
Queen's Depot, duty men,*			2666		1560	125
Poona Division,	2112	19	2154	19	1932	55
Kirkee, 10th Hussars,	2342	25	2282	13	2303	27
Poona Station,	2041	172	2066	23	1762	67
8th Regiment,.....	2136	12	2733	21		
22d "	1999	243	1784	24		
64th "					2616	81
83d "					1279	58
86th "	1837	132				
Southern division,						
Belgaum, 78th Regiment,	1770	127	1508	16	1282	25
Northern division,						
Deesa, } 86th	1278	209	1510	26	1517	22
} 28th	1170	178				
Scinde,	1195	238	1613	26	1794	40
Kurrachee,	1195	238	1590	28	1520	43
8th Regiment,			1659	18	1358	28

* The invalids admitted at Colaba are left out of this comparison.

	In 1847-48.		In 1848-49.		In 1849-50.	
	Were admitted.	Died.	Admtd.	Died.	Admtd.	Died.
22d Regiment			2530	60	1524	30
60th „	1195	238	1336	31	1678	61
64th „					1740	72
Hydrabad, 8th „			2364	15	2183	33
Peshawar, 60th „			1344	23	3739	58
Aden, 78th „					1067	10
At sea, } 64th „					521	14
					1085	24
83d „						

Retrospective Health of Corps, 10th Hussars.—The 10th Hussars arrived from England in August 1846, and has been always stationed at Kirkee. Its average proportion of admissions has exceeded that for the whole command by 695 per 1000 of the strength the first year, by 534 the second, and 402 the third, while its mortality in hospital has been smaller by two and a-half per cent. the first year, one and one-third the second, two and seven-tenths the third; that of the whole command being only two and one fifth the first, two and six-tenths the second, four and seven-tenths the last year.

8th and 22d Regiments.—The 8th regiment continues divided betwixt Kurrachee and Hydrabad. At Kurrachee last year the admissions in the right wing were 1659, and the deaths nineteen per 1000; this year the admissions were only 1353, but the deaths, twenty-eight per 1000, or two and three-fourths per cent.; while the left wing at Hydrabad since February 1849 admitted per 1000 this year 2483, and lost thirty-three. During the seven months ending 31st October, the right wing of the 22d at Colaba, admitted 1108, and lost thirty men, from a strength of 586, being equivalent to 3240 admissions, and eighty-eight deaths per 1000 annually. Last year at Colaba, the left wing, from 2d October to 23d January, and the right, in succession, from 24th January to 31st March, admitted together 608, and lost nineteen men; the strength of the left wing being 501, and of the right 669. The annual average strength of both wings was 279, and the annual ratio of admissions to strength 2179, and of deaths to strength sixty-eight per 1000. At Kurrachee, from 1st April to 31st October, the left wing admitted 4510, and lost nine from a strength of 507 men, being an annual rate per 1000 of 1524 admissions and thirty deaths.

60th Rifles.—The mortality of the 60th Rifles last year at Kurrachee, 1st April to 6th October, en route to, and on service in the Punjab 7th October to 31st March, including a detachment of 88 men left behind at Kurrachee, was 32 in hospital, 10 in action, and 2 from accidents—44 in all. This year at Peshawar, 848 strong, from 1st April to 31st October, the head quarters admitted 1851, and lost 29 men; being at the annual rate of 3739 admissions and 58 deaths per 1000; while the depôt at Kurrachee, 150 strong, admitted 147, and lost 6—*i. e.* at the annual rate per thousand of 1678 admissions and 61 deaths.

64th.—The 64th regiment embarked at the Cove of Cork in five divisions, betwixt the 6th January and 9th February, in medical charge of the surgeon, his three assistants, and assistant surgeon Innis, of the 83d, who had also a party of his own corps in charge. The first division reached Bombay on the 4th May, the last on the 3d June; the strength of non-commissioned officers and men was 1109. Four men died during the voyage from *phthisis pulmonalis*, erysipelas, fever, and cholera morbus, and a fifth was drowned. Unfavourable winds and the detection of measles among the children embarked detained the different vessels in harbour from 5 to 13 days. This detention included, the longest passage was 141, the shortest 106, the average 121 days. The average number of days at sea, from 1st April was 47, and in the Presidency 318. Catarrh, fevers, and measles among the children gave some trouble; but the men were very healthy, though since their arrival they have had the misfortune to lose 5 from coup de soleil in marching to Poona; 45 men at Poona, where they remained till the 24th and 27th of November; 26 at Kurrachee; and 3 at the Queen's Depôt Colaba, making 76 in all. During the year 31 of these fell victims to cholera morbus; one (as already mentioned) at sea, 15 at Poona, and 15 at Kurrachee.

78th Regt.—The 78th regiment marched from Belgaum on the 6th and 7th November, to embark at Vingorla, the left, or head quarter wing, for Aden, the right for Colaba. Since these dates

Ratio per 1000.

Have	The	Annual	Admis-		Admis-	Deaths	Deaths
been	strength.	average strength.	sions.	Deaths.	sions to	to	to ad-
At Colaba	547	228	485	10	2228	44	21
Aden	498	208	222	2	1067	10	9

83d.—The 83d embarked, 1143 strong, at Cove in 7 vessels, betwixt the 10th February and 15th March. The first division arrived in Bombay on the 18th May, and the last on the 14th July. In addition to the four medical officers of the regiment, Assistant-Surgeon Heffernan of the 60th rifles and two ship surgeons came in charge of the divisions. During the voyage, 3 men died from phthisis, 2 from bronchitis, and 2 from accidental injuries; and, on the march from Panwell to Poona, 3 from coup de soleil. The longest passage was 119, the shortest 97, the average 105 days. The average number of days at sea from 1st April, commencing the military year, was 67, leaving 268 for the command. At sea from 1st April to the date of arrival, 227 men were admitted, and 5 died. There were 2 cases of phthisis, 12 of bronchitis, 36 of acute and 5 chronic catarrh, 20 continued fever, 16 ophthalmia, 12 bowel complaints, 18 cases of primary sores, gonorrhœa, and bubo, and 13 of consecutive syphilis. Of the

fatal cases, 2 of bronchitis and one of phthisis had been admitted before 1st April. At and on the march to Poona, the 83d have admitted only 1228, but lost 56 men: of this large proportion, 22 at Poona were from cholera.

86th.—The 86th at Deesa has lost only 26 out of 1145 men, or two one-fifth per cent. during the year. Its proportion of admissions too is nearly one-third below the average.

Salubrity of different Months and Quarters of the Year.—The salubrity of the different months and quarters is in this table compared.

Quarters.	Months.	Admitted.	Died.	Ratio per 1000 in the different months to the whole	
				Admissions.	Deaths.
1st	April	1105	20	78	61
	May,	1156	20	82	61
	June,	1721	36	122	111
	Total,	3982	76	282	233
2d.	July,	1423	38	100	101
	August,	1366	53	97	163
	September,	1431	58	101	175
	Total,	4223	144	298	439
3d.	October,	1726	28	120	86
	November,	1007	15	72	46
	December,	946	31	66	98
	Total,	3679	74	258	230
4th.	January,	846	15	60	46
	February,	697	5	48	15
	March,	728	11	52	36
	Total,	2271	31	160	98
Grand Total,		14155	325		
Monthly Average,		1179	27 $\frac{1}{4}$		

	The Strength.	Admissions.	Deaths.	Ratio per 1000 of		
				Admis- sions to Strength.	Deaths to Strength.	Deaths to admis- sions.
Was last year	6295	11006	165	1748	25	15
This year	7452	14155	325	1899	44	19
Difference	1157	3149	160	151	19	4

Here in Sickness		In Mortality	
June stands	1st.	September	1st.
October	2d.	August	2d.
September	3d.	June	3d.
July	4th.	July	4th.
August	5th.	December	5th.
May	6th.	October	6th.
April	7th.	April	} 7th
November	8th.	May	
December	9th.	November	} 8th.
January	10th.	January	
March	11th.	March	9th.
February	12th.	February	10th.

Prevalence and Mortality of different classes of Diseases.—Of 14155 admissions during the year were returned under,

		i. e. per 1000 of the whole ad- missions.	And died.	i. e. per 1000 of the whole deaths.
Fevers,	4683	330	47	141
Eruptive fevers,	11	78	2	15
Cholera morbus,	110	78	62	222
Diseases of {	Stomach & bowels,	2667	188	86
	Liver,	674	407	40
	Lungs,	550	39	4
	Brain,	172	12	33
Dropsies,	14	99	4	12
Rheumatism,	763	54	1	3
Venercal,	1796	126	4	12
Ulcers and abscesses,	836	59	3	82
Wounds and injuries,	520	37	...	...
Punitis,	12	85	...	...
Morbi oculorum,	572	40	...	...
„ cutis,	68	48	...	...
Other diseases,	712	50	9	...
Total,		14155	325	

Predominance of fevers at every station.—The extent to which fevers have prevailed during the year is shown in this table:—

	For Fevers			The ratio per ratio.		
	From an average strength.	Were admitted.	Died.	Admis- sions to strength.	Deaths to strength.	Deaths to admis- sions.
At Colaba	586	561	3	957	512	53
Poona	1512	796	16	527	105	20

	From an average strength.	Were admitted.	Died.	The ratio per 1000		
				Admissions to strength.	Deaths to strength.	Dths. to admissions.
Kirkee	671	439	5	639	7·35	11
Belgaum	631	92	...	146	...	...
Deesa	1145	451	5	392	4·3	19
Kurrachee	1324	433	7	327	5·2	16
Hydrabad	489	468	2	957	4·1	4·2
Peshawar	495	1361	8	2477	16	6
Aden	208	40	...	192	...	...
At sea {	64	106	6	56	..	...
	83	209	20	95	...	...
Duty men	7410	4661	46	899	6	7
Invalids	38	16	1	...	...	...
Totals,	7448	4683	47	900	6·3	6·3

This gives an average of 900 cases of fever during the year for every thousand men in the Queen's troops. At Peshawar 1361 cases were admitted from a strength of 848 men in 7 months. This strength is equivalent to 496 for twelve months, and gives the enormous annual proportion in the table.

The proportion of admissions per 1000 of the strength exceeds that of the preceding year by

217 in the command, 361 at Kirkee

2018 at Peshawar, 223 at Hydrabad

377 at Colaba, 22 at Kurrachee

and falls short of it by

149 at Poona, 21 at Deesa

27 at Belgaum.

The proportion of fatal cases to the admissions exceeds that of last year at Poona 17·4, Deesa 10·5, Kurrachee 22·5 per 1000; and falls short of it in the whole command by 7·75—at Colaba 13·3, at Hydrabad 16·8, and at Peshawar 16.

Here are the admissions and deaths from different types of fever at every station in every corps—

Stations.	Regiments.	Intermitts.		Remittent.		Continued.		Totals.	
		Admitt.	Died.	Admitt.	Died.	Admitt.	Died.	Admitt.	Died.
Colaba.....	22d Regt.	21	...	1	1	453	2	475	3
"	.....78th "	12	...	66	...	8	...	86	...
"	.....Totals	33	...	67	1	461	2	561	3
Belgaum...	78th Regt.	56	...	2	...	34	...	92	...
Kirkee	10th Hussars	89	...	14	1	336	4	437	5
Poona	{64th Regt.	39	...	340	5	110	6	489	11
	{83d "	12	...	12	4	283	1	307	5
Total		51	...	352	9	393	7	796	16

Stations.	Regiments.	Intermitts.		Remittent.		Continued.		Totals.	
		Admitt.	Died.	Admitt.	Died.	Admitt.	Died.	Admitt.	Died.
Deesa	86th Regt.	144	...	206	5	101	...	451	5
Kurrachee	8th Regt.	19	...	4	...	82	...	105	...
	22d "	50	...	6	...	42	1	98	1
	60th "	17	...	...	...	17	1	34	1
	64th "	52	...	142	5	2	...	196	5
	Total	183	...	152	5	143	2	433	7
Hydrabad	8th Regt.	323	...	13	2	132	...	468	2
Peshawar	60th Regt.	575	1	4	2	782	6	1361	8
Aden	78th Regt.	6	...	...	...	34	...	40	...
At Sea...	64th Regt.	1	...	3	...	2	...	6	...
	83d "	...	...	...	...	20	...	20	...
Totals		1	...	3	...	22	...	26	...
Invalids.....		4	...	2	1	10	...	16	1
Grand total....		1420	1	815	25	2443	21	4683	47

Fevers at Kirkee.—At Kirkee fevers were very prevalent during the suspension of and after the monsoon rains, when a tainted atmosphere appeared to impart to other diseases, as well as fever, a virulent character. Of 18 fatal cases, 8 occurred betwixt the 9th August and 6th September: five from cholera, 2 from dysentery, and 1 fever; 3 more from betwixt 4th November and 15th December; a fourth in an invalid who had contracted fever from drinking spirits largely and exposure to the sun in marching to Panwell. During several weeks the average admissions for fever at Kirkee were 5 daily. Fevers were very prevalent, but less intense after the cessation than during the intermission of the rains. They were generally accompanied by determination to the head, and often to the spleen and other internal organs.

Kurrachée.—A proportion equal to one-third of the strength was admitted for fever.

Of 433 cases of fever at Kurrachee were in the

	Intermittens.		Remittens.		Continued.		Total.	
	Admit.	Died.	Admit.	Died.	Admit.	Died.	Admit.	Died.
8th R. Wing,	10	0	4	0	91	0	105	0
22d L. Wing,	50	0	6	0	42	1	98	1
60th Depot,	17	0	0	0	17	1	34	1
64th Regt.,	52	0	142	5	2	0	196	5
Total,	129	0	152	5	152	2	433	7

8th Regiment.—The 8th regiment did not lose one case of continued fever out of 132 at Hyderabad, 91 at Kurrachee, and 2 at Colaba. Two, in 13 cases of remittent, died at Hyderabad.

Of 26 cases of that type, comprising all that had been treated

in the 8th regiment since 1846, and of which one was a relapse, five have died. Of 1846 cases of continued fever, treated during the same period, one in $149\frac{5}{9}$ or $\cdot 51$ per cent. died.

60th at Peshawar.—The 60th Rifle Regiment admitted at Peshawar in seven months, and from a strength of 848 men, 1361 cases of fever, eight of them terminating fatally. This regiment, at the beginning of the military year, was encamped on the plain of Jamrood, opposite the Kyber Pass. On the 6th May the Bombay force broke up its camp and marched to the places selected for the different regiments in and near the town of Peshawar, to remain during the hot season. The 60th were obliged to encamp again, near the town, in a recently cropped field, until the quarter assigned them was ready for occupation. This was a house and several buildings about half a mile to the southward of the town, which had belonged to and been occupied by Sultan Mahomed, and his people, built in a place or garden called Wuzeerabagh, comprising about twenty acres, enclosed with high mud walls, surrounded by extensive and thickly wooded orchards. The town itself is very large and irregular, with mud walls all round, and is said to contain now about 50,000 inhabitants, though forty years ago the number was double. The filth of every description accumulated outside the walls in the neighbourhood of each gateway is very great, and the effluvia most overpowering, particularly in the hot weather. The graveyards, too, are very numerous, and in every direction round. They are quite open receptacles for filth, and the haunt of jackals and pariah dogs. On the north side of the town the ground is very low and swampy, and most of it cultivated to the bank of the river Cabul, distant about ten miles. Eastward the ground is also very low, and about half a mile from the town there is a large waste marsh. Beyond this the ground rises again, and is extensively cultivated. On the south side the ground is higher, and here is the belt of orchards, from half a mile to a mile in breadth. The other side, which is a broad flat ridge, is cultivated for grain almost to the foot of the Cabul Hills, distant about sixteen miles. Westward of the town the ground gradually rises, until terminated by the Kyber range of mountains, distant about twenty miles.

The cultivation extends to about six or eight miles from the town. The whole of the cultivation is carried on by irrigation, the water for which is brought by numerous channels from two mountain streams. As the supply of water is unfailing, the ground is kept saturated as much as wished by the farmer, and he has two crops a year from it, the first of wheat, oats, barley, and rice, reaped in May, the second of cotton, maize, and some small grains reaped in October and November. In some places, as many as four crops of different kinds are annually obtained from the soil.

From the quantity of marshy ground, and the constant irrigation of the country, particularly of the orchards, intermittent fevers, as might be expected, are very prevalent, chiefly in the autumn, and the troops in exposed situations suffered accordingly. On the north side of the town, the reserve companies of the Bengal Artillery, upwards of 200 men, were quartered in the Fort, at the foot of which the swampy ground commences, and only one man out of the whole number escaped intermittent fever. In almost all the disease was most severe, one-half of the men having organic disease consequent on it.

Eastward of the town, the 31st native infantry were quartered, and the greater number of the seapoys were attacked with the disease in October. On the southward, surrounded by orchards, were the 60th Rifles, and by the end of October upwards of 480 men out of a strength of 800 had been attacked with intermittents. Westward of the town, where the ground was higher and more free from cultivation and moisture, the troops mostly escaped, though many individuals who had suffered from the disease before had here a return of it.

The natives of the place are very subject to this disease, and many of them have disease of the spleen. Ophthalmia also appears to be of frequent occurrence, and the number of people met with who have lost eyes is very remarkable. In the latter end of March and during April thunder storms with heavy showers of rain occurred every six or seven days, keeping down the temperature, which seldom rose above 80° in tents. In the dry clear days, which were general towards the end of April and beginning of May, with a powerful sun, electricity accumulated in objects to an extraordinary degree. On brushing the hand on a towel along the wall or roof of the tents in the evening, a broad streak of light was produced from the number of sparks elicited.

The hot season fairly commenced on the 7th May. Some hot days had occurred in the beginning of the month and end of April, but rain had fallen and again cooled the air. The rest of the month of May from the 7th was excessively hot with frequent, almost daily, hot, dry, parching winds from the north-west, commencing at any hour either of day or night, and blowing strong for hours. The thermometer in tents rose to 115 and upwards, frequently to 100 during the night. Similar weather continued up to the middle of June, after which the hot winds seldom occurred, the weather clear and nearly calm, the heat from the powerful sun very great, the ground, wall, &c., becoming heated like a furnace. July was very similar; but twice or three times at intervals thunder storms occurred with showers which cooled the atmosphere for a few days at each time. In the beginning of August, the air had become loaded with moisture, the heat continuing

great and very oppressive till the 14th of the month, when a thunder storm and rain for two days came on and put an end to it. The end of the month and part of September were hot again in the day-time, but not oppressive, and the nights were comparatively cool and continued increasingly so. Throughout October the sun was powerful in the day-time, the nights very cold, the alternations of temperature being 45° and even 50° .

The supply of water for all purposes is abundant and very good. The natives consider that from the streams more wholesome; but to obtain it clear and pure, it is necessary to send some distance. Wells are also numerous, and the water sweet and good. Two of them are famed for the coldness and goodness of the water. One of these was in the Wuzeerabagh, the quarters of the 60th rifles. It was sunk to the depth of 75 feet, and afforded an abundant supply for every purpose to the whole regiment of excellent water, and at the temperature of only 55° throughout the whole season. It was the greatest luxury to every one, and of most essential benefit in the hospital. For the whole of these details I am indebted to the reports, official and private, of my esteemed friend Dr Boyes, surgeon of H. M. 60th rifle regiment.

Poona.—64th and 83d Regiments.—Of 796 cases of fever at Poona in the

	Admit.	Died.	Admit.	Died.	Admit.	Died.	Admit.	Died.
	Intermittens.		Remittens.		Continued.		Total.	
64th,	39	0	340	5	110	6	489	11
83d,	12	0	12	4	283	1	307	5
	51	0	352	9	393	7	796	16

Kurrachee, 64th Regiment.—At Kurrachee the 64th admitted for intermittent 52, remittent 142, continued 2, and lost 5. At Poona, in this corps, fevers increased from August to November, when the undrained surface on which the Ghorpoorie barracks stand is loaded with stagnant water, and the atmosphere with emanations from it. In the young and vigorous the more severe forms of the disease and relapses were very common. Eleven cases in the 64th, 5 under remittent, 6 under continued fever, and 5 in the 83d terminated fatally.

78th Regiment, Colaba.—In the 78th at Colaba, intermittent appeared chiefly during the dry easterly winds of January. The most severe cases of remittent occurred after the march from Belgaum in November. They were of highly inflammatory character, and ascribed chiefly to solar influence. In the progress of the month they became less inflammatory, and required less active treatment. In January and March they were complicated with hepatitis, and in February, as the sun became more powerful, hepatic congestion.

Cholera Morbus in 64th Regiment.—One hundred and ten cases

of cholera morbus, 63 of them fatal, have occurred among the Queen's troops during the year. Two men of the 64th Regiment were attacked with the symptoms of this disease in the ship "Tulloch Castle," on the 21st and 23d April, in lat. $36^{\circ} 54' S.$, long. $37^{\circ} 30' E.$, about a fortnight to the east of the Cape of Good Hope, and one of them died. The two first among the Queen's troops in the Presidency occurred in July at Khandalla in two men of the 83d regiment, marching from Panwell to Poona, on their arrival in the command. They both recovered, but are reported to have been very severe. The next cases occurred at Kirkee in the 10th Hussars, two on the 9th, one on the 12th, one on the 14th August, and one on the 15th September, all fatal. On the 20th August a case occurred in Her Majesty's 83d Regiment, occupying the left flank barracks at Poona, twelve more betwixt 21st and 30th August, ten from 9th to 15th September, two on the 19th, and one on the 22d, in all in the 83d Regiment at Poona 26, of which 22 terminated fatally. There have been since two cases, which did well, making the total 30; 13 of the number, not including the first case, were attacked in hospital while under treatment for other complaints. On the 7th September a case appeared in the 64th Regiment, quartered in the right flank or Ghorpoorie barracks, Poona, three on the 8th, 29 from the 11th to the 21st, and one on the 26th, making 34 in all from 7th to 26th September, of whom 14 died. Three women of the 10th Hussars, one of the 83d; three women (out of five attacked), and three children of the 64th (out of four attacked) also died.

64th Regiment.—The 64th regiment left Poona en route to Kurrachee in four divisions, on the 24th, 25th, 26th, and 27th November, embarked at Panwell on the 1st and 2d, and reached its destination on the 5th, 6th, and 8th December. One case of cholera, severe but not fatal, occurred in the first division two days before it reached Panwell. The same day a middle aged paralytic woman, and on the 3d December, in the steamer, an aged female was attacked and died. Betwixt the 7th and 29th December, 35 men of the 64th were attacked and 22 died. One officer of the 8th and one of the 64th have been attacked and recovered; one man of the 8th and one of the 60th depot at Kurrachee have been attacked and died. The latest admission for cholera at Kurrachee was in the 60th depot on the 3d January, and none remained under treatment in the middle of that month. The cases that have occurred during the year are in the

				Admitted. Died.	
10th Hussars	.	Kirkee	.	5	5
8th Regiment	.	Kurrachee	.	3	1
22d do.	.	Colaba	.	2	2
„ do.	.	Kurrachee	.	1	0

			Admitted.	Died.
64th Regiment	.	At Sea	2	1
"	do.	Poona	36	15
"	do.	Kurrachee	26	15
78th	do.	Belgaum	2	0
"	do.	Colaba	1	0
83d	do.	Khandalla	2	0
"	do.	Poona	28	22
83d	do.	Deesa	2	1
Total			116	62

Bowel Complaints.

	From an average strength.	Were admitted.	Died.	Being per 1000	
				Admissions to strength.	Deaths to admissions.
At Colaba	586	404	20	655	52
Poona	1512	605	24	397	40
Kirkee	671	279	7	416	25
Belgaum	681	119	7	188	59
Deesa	1145	370	4	323	11
Kurrachee	1324	502	15	379	31
Hydrabad	489	171	6	350	35
Peshawar	495	105	7	212	66
Aden	208	40	1	192	25
At Sea	349	40	1	121	25
Duty men	7410	2635	86	356	33
Invalids	38	15	1	132	66
Total	7448	2650	87	342	32

In Comparison with last year.—Bowel complaints have prevailed and proved fatal in nearly the same proportion as last year for the whole command, but with increase and diminution at particular stations.

The Increase of Admissions has been at		The Diminution at	
Colaba,	271	Kirkee,	35
Poona,	77	Belgaum,	43
Deesa,	42	Kurrachee,	9
Hydrabad,	159	Per 1000 of the strength.	

While of Mortality.

The Increase is at		And Diminution at	
Poona,	6	Colaba,	26
Belgaum,	18	Kirkee,	29
Hydrabad,	35	Deesa,	26

Per 1000 of the admissions.

The next table gives the comparative prevalence and mortality of fevers and bowel complaints at different stations, for the last

two years, in which one indicates the maximum, and seven to ten the minimum proportion of admissions to strength, and of deaths to admissions per 1000.

Deaths to admissions per 1000.									
Fevers.									
		Prevalence		Mortality				Bowel Complaints.	
		this last		this last				Prevalence	
		year.		year.				this last	
		year.		year.				year.	
Colaba,	.	2	3	6	2	...		1	3
Poona,	.	4	2	1	5	...		3	4
Kirkee,	.	3	6	4	3	...		2	1
Belgaum,	.	.	.	8	8	...	...	9	6
Deesa,	.	.	.	5	5	2	4	6	5
Kurrachee,	.	.	.	6	7	3	6	4	2
Hydrabad,	.	.	.	2	1	7	7	5	7
Field Service,	.	.	.	...	4	...	...	...	6
Peshawar,	.	.	.	1	...	3	...	...	...
Aden,	.	.	.	7	...	...	...	8	...
At Sea,	.	.	.	8	...	...	...	10	...

From this comparison it appears, 1st, That fevers were most prevalent last year in the field, this year at Peshawar; and 2d, in prevalence at Colaba; 3d, Kirkee; 4th, Poona and Hydrabad; 5th, Deesa; 6th, Kurrachee; 7th, Aden; and 8th, the smallest proportion as well as mildest form at Belgaum, where there was not one fatal; also that the most fatal prevailed at Poonah.

2d, That bowel complaints were most prevalent at Colaba, and least prevalent as well as least fatal at Aden, where they had not lost a case in five months; 2d, in prevalence at Kirkee; 3d, Poona; 4th, Kurrachee; 5th, Hydrabad, and 6th, Deesa. That they were most fatal at Peshawar, 2d, in fatality at Belgaum; 3d, Colaba; 4th, Poona; 5th, Hydrabad; 6th, Kurrachee; 7th, Kirkee, and 8th Deesa.

Specific Stomach and Bowel Complaints.—To the class of stomach and bowel complaints have been referred

	Admitted.	Died.
Peritonitis, . . .	6	...
Gastritis . . .	10	...
Enteritis, . . .	4	2
Colonitis, . . .	1	...
Hæmatemesis . . .	9	...
Dysenteria acuta, . . .	717	54
... chronic, . . .	129	21
Diarrhœa, . . .	1007	9
Dyspepsia, . . .	346	...
Colica, . . .	280	...
Obstipatio, . . .	151	...
Total	2660	86

Abdominal Inflammation.—Of twenty-one cases admitted under peritonitis, gastritis, enteritis, and colonitis, two of enteritis terminated fatally in the 83d regiment.

Dysentery.—Of 846 admitted for dysentery, acute and chronic, 75, or one in eleven one-third died. Of these cases were

At	Regiments.	Acute.		Chronic.		Total.	
		Admitted.	Died.	Admitted.	Died.	Admitted.	Died.
Colaba,	{ 22d,	92	11	17	4	109	15
	{ 78th,	47	2	18	2	65	4
Total,		139	13	35	6	174	19
Poona,	{ 64th,	101	2	11	2	114	6
	{ 83d,	87	12	2	2	89	14
Total.		188	16	13	4	201	20
Kirkee, 10th Hussars,		26	1	8	1	34	2
Belgaum, 78th Regt.		46	7	6	...	52	7
Deesa, 86th „		52	2	7	...	65	2
Kurrachee	{ 8th „	64	3	10	...	54	3
	{ 22d „	28	2	23	4	51	6
	{ 60th „	8	...	2	...	10	...
	{ 64th „	100	4	2	...	102	4
Total,		200	9	37	4	237	13
Hydrabad, 8th Regt.		31	2	12	4	43	6
Peshawar, 60th „		21	3	5	1	26	4
Aden, 78th „		7	...	2	1	9	1
Invalids,		...	...	5	1	5	1
Total,		716	53	130	22	846	57

10th Hussars.—In the 10th Hussars the disease was less prevalent and more tractable than last year. Of 26 acute cases, 11 occurred in July during the height of the rains, and 4 in August; and of 148 of diarrhœa 97 occurred in the monsoon. Tubercles of the spleen, as well as ulceration of the intestines, were found in one of the fatal cases.

8th Regiment.—Of 10 fatal cases in the 8th regiment, 6, out

of 43 attacked, occurred at Hyderabad, 3 at Kurrachee out of 70 and 1 at Colaba in an invalid.

The 22d regiment has suffered more from dysentery than any other corps. The right wing at Colaba having lost 15 out of 100 admissions, and the left wing at Kurrachee 6 out of 51. The last monsoon was of unusual severity, and the fall of rain greater at Bombay than any year since 1828. At the Queen's Depôt, Colaba, 117½ inches of rain fell during the monsoon, yet in the hot months of April and May, hepatic and dysenteric complaints were much more prevalent than during it. The 78th lost 7 men from dysentery to November at Belgaum, 4 more to 31st March at Colaba. Affections of the bowels became very prevalent in that corps in December and January, and are ascribed by Dr M'Kinnon, the senior assistant surgeon, to the alternations betwixt the mid-day heat and the cold dry easterly night winds. The 83d, one of the newly-arrived regiments, lost 14 cases of dysentery, which began to appear in that corps soon after the rains set in at Poona. One case only occurred in June, 52 and 3 deaths in July, 20 and 6 deaths in August, 11 and 4 deaths in September. In October 3 cases only, and no deaths. A fatal case in November, but no admissions for dysentery in December or January, and one case in February, making 89 admissions and 14 deaths in all. Though a more sickly corps than the 83d, the 64th lost only 5 men at Poona and 6 at Kurrachee from dysentery. In that corps it presented two forms, the one attended by colonitis and very severe, the other mild. One of the fatal cases was complicated with the rupture of a blood-vessel and extravasation of blood to the bulk of a hen's egg on the right posterior lobe of the cerebrum, causing hemiplegia of the left side and epileptic fits. The large intestines were thickened, congested, and ulcerated. A young recruit, who had suffered from *cynanche parotidæa*, followed by a deep-seated abscess which burst into the internal ear in July last, remained in hospital with the hearing gone, the motion of the right side much impaired and feeble from an attack of cholera at the end of the military year.

Dysentery, 60th Regiment.—Bowel complaints have not in general been of a formidable nature in the 60th regiment. There were 138 admissions and 8 deaths. Of the fatal cases some were combined with abscess in the liver, others were the sequelæ of intermittent fever. The admissions returned under dysentery at Peshawar are 26, and deaths 4; at Kurrachee, admissions 10, deaths none.

86th.—Of 486 admissions for abdominal diseases at Deesa, 84 occurred from April to June, 176 from July to September, 105 October to December, and 121 January to March. There were 11 fatal, chiefly in September, October, and November.

Diarrhœa.—Nine fatal bowel complaints in 1007 admissions are returned under diarrhœa, 4 in the 60th regiment, and one respectively in the 64th, 78th, 83d, and 86th regiments.

Hepatic Diseases.—Diseases of the stomach and bowels stand first, cholera morbus second, fevers third, and hepatic diseases fourth, as the causes of death among the troops during the year, and the derangement and disorganization of this organ are very often the prelude and concomitant of fatal dysentery in this as in other climates. To this class are referred

In the	Acute Hepatitis.		Chronic Hepatitis		Icterus.		Totals.	
	Admitt.	Died.	Admitt.	Died.	Admitt.	Died.	Admitt.	Died.
10th Hussars	23	...	33	2	6	...	62	2
8th Regt.	56	1	66	4	14	...	136	5
22d „	47	5	84	5	9	...	140	10
60th „	17	3	9	2	20	...	46	5
64th „	29	3	15	...	20	...	64	3
78th „	58	2	55	6	7	...	120	8
83d „	4	1	2	1	5	...	11	2
86th „	28	...	60	5	7	...	95	5
	262	15	324	25	88	...	670	40

Hepatic Diseases.—From this table we may at once assume that the men of the 83d regiment have sounder abdominal viscera than those of any other corps in the Queen's service. Such was the case two years ago with the 8th regiment, before it had sent a wing to Colaba, or left Poona; but the proportion of its admissions for hepatic diseases, next in amount to that of the 22d, now tells a less flattering tale.

Hepatic diseases bear a proportion of above 4 per cent. to the whole admissions, and 12 per cent. to the whole deaths. Of the fatal cases, 10 occurred in the 22d, 8 in the 78th, 5 respectively in the 8th, 60th, and 86th regiments, 3 in the 64th, and 2 in the 10th hussars and 83d; the strength of the hussars being 675, and of the foot regiments 1170. Of 136 cases (including icterus) in the 8th regiment, 64 occurred and 4 died at Kurrachee, 57 occurred and one died at Hyderabad. By instructive tables of calculations given in Dr Tice's Report, it appears that during the last 3 years and 8 months, embracing August 1846 to March 1850, 633 cases of hepatitis have occurred in the 8th regiment. Of the cases

1 in $3\frac{29}{178}$ of the number were relapses which had occurred once in 50 men, twice in 25, three times in 18, four times in three, and 6 times in two.

2. The average number of days every case was under treatment, was $6\frac{1}{4}$.

3. Of 633 case 7, or 1 in $90\frac{3}{4}$, died.

In the majority of the fatal cases of dysentery in the 8th regiment hepatic abscess was associated with the intestinal disease.

60th.—In the 60th regiment many of the cases of hepatic disease occurred in April whilst encamped at Jamrood after the termination of the campaign.

64th Regiment.—Of acute hepatitis in the 64th, were 29 admissions, chiefly in Poona, two of them terminating fatally; one case also died at sea.

78th Regiment.—Assistant-surgeon M'Kinnon dissents from the opinion that Belgaum gives predisposition to hepatic diseases. The men of the 78th regiment who arrived from England while it was quartered there, became stout and ruddy with every appearance of good health; but since the wing came to Colaba in November these men look ill, thin, and sallow. This change, though often aided by intemperate habits, must be chiefly ascribed to the high temperature and relaxing climate of Bombay. In November there was no case of hepatitis, but nine of deranged function of the liver. From December to 31st March inflammatory and other diseases prevailed, and seemed to increase in proportion to the advance of the hot weather. Dr M'Kinnon gives a table embracing useful observations on this subject, and subjoins several well written dissection reports. At Belgaum and Aden together, 36 cases of acute and 43 of chronic hepatitis have been treated; two of them remained from last year, one was admitted four, two three times, eight twice. The acute cases occurred chiefly at Belgaum, in the rains, and several required the most active treatment. Abscesses were found in fatal cases. At Aden there have been several relapses, and the cases which occurred were chiefly subacute and chronic, in no case requiring general blood-letting. Men of drunken habits have been the chief sufferers from the disease.

83d Regiment.—Large abscesses were found in the livers of the two cases that terminated fatally in the 83d Regiment.

86th Regiment.—At Deesa 88 cases were admitted and six died of hepatitis. The cases were more severe in the hot than in the cold season. Hepatic abscess often forms here and in other parts of India without any preceding stage of acute inflammation.

Hæmatemesis at Deesa.—Of nine cases of hæmatemesis in the command seven occurred at Deesa, six of them in April and May, the two hottest months of the year. This disease appears to Dr Thom to be connected "with that vascularity and plexiform patches of congested vessels, observed on the mucous coat of the stomach, and dependent on high temperature and the use of drams of arrack. Acids always cured it in a very decided manner, and he found the same remedies, particularly nitric acid, equally useful in many cases of dyspepsia."

Pulmonic Diseases.—For diseases of the lungs were

	Admitted.		Died.
Bronchitis,	90	...	5
Pneumonia,	37	...	3
Pleuritis,	10	...	1
Catarrhus acutus	11	...	0
„ chronicus,	282	...	1
Hæmoptysis	73	...	4
Phthisis pulmonalis	29	...	20
Dyspnœa continua,	18	...	0
<hr/>			
Total,	550	...	34

Bronchitis.—Of bronchitis, 33 cases occurred at Deesa, 21 in the 83d regiment, 13 in the 78th, 12 in the 64th, and 11 in the 8th. Five cases terminated fatally, one in the 8th at Kurra-chee, four in the 83d, two of them at sea, one in Poona, and one in the Queen's depot. One of the fatal cases was combined with, and probably arose from organic disease of the heart, which was surmised during life, and found on dissection.

The 13 cases of bronchitis in the 78th at Colaba occurred chiefly in January and February, and were easily treated.

The four fatal cases in the 83d had been contracted at sea, where two of them died, and were all along under treatment.

Pneumonia, Pleuritis, and Catarrh.—Three out of 37 admitted died under pneumonia; one out of 11 under pleuritis, one out of 282 returned as acute, and four out of 73 of chronic catarrh. Seventeen, or nearly one-half of the cases of pneumonia, occurred at Deesa. They were almost confined to the cold months; not a single case occurred in the first quarter, and only two in the second. One man who had been admitted with symptoms of pneumonia died from the bursting into the pleura of an aneurism the size of a duck's egg at the commencement of the descending aorta. Of 71 cases of catarrh in the 86th, only 15 occurred in the first six months, and 46 in the second. During which last the air was dry and subject at night and in the mornings to sudden vicissitudes of heat and cold. The usual form was gastro-catarrhal, the mucous membrane of the stomach and intestines, as well as the bronchi, being engaged, and diarrhœa, a common termination. In the treatment, Dr Thom found antimonials inadmissible when the mucous coat of the stomach was involved, but ipecacuanha in nauseating doses a safe and effectual remedy.

Of 282 cases of acute catarrh, one, and of 73 of chronic, four terminated fatally.

Phthisis Pulmonalis.—Twenty-nine admissions and twenty deaths are referred to *phthisis pulmonalis*. The fatal cases were, in the 83d, 6 ; 64th, 5 ; 8th, 3 ; 86th, 3 ; 22d, 2 ; 10th ; Hussars and 78th, each, one.

Morbus Cordis.—Under *morbus cordis* palpitation carditis, and pericarditis have been returned, 78 admissions and two deaths, 25 in the 10th Hussars, 11 in the 83d, 11 in the 64th, five in the 8th, two in the 22d. The fatal cases occurred in the 60th at Kurrachee and 78th at Belgaum. Twenty-five cases, but only 17 individuals were admitted in the 10th Hussars. One of them had disease of the brain, also disease of the lungs from previous pneumonia ; one was ascribed to injuries received in falls from horseback ; another to a severe beating from a comrade. The number requiring change of climate for cardiac symptoms was fewer than last year ; from the smaller number of recruits, and from the horses of the regiment, being now thoroughly broken in, so that the amount of hard riding at Kirkee has been much diminished. One delicate lad was three times admitted for palpitation from the exertion of blowing a trombone in the band. He was removed to the ranks, and the symptoms have disappeared. Of 11 cases in the 64th regiment, five were relapses, none indicated organic disease, and they have all returned to duty. Of five cases in the 78th, two occurred at the top of the Ramghaut on the march to Vingorla from exposure to wet ; one was cardialgia and relieved by opiates and leeches ; one of pericarditis, in a subject tainted with syphilis, was cured by a mild mercurial course ; the third was very like the second. In the fourth, irregular and tumultuous action of the heart, with intermitting pulse, were relieved by the periodical abstraction of blood, antimony, digitalis, and antispasmodics. Of six cases at Deesa, there was reason to suspect in one dilatation of the right ventricle, and he was invalided. In all the others, the cardiac symptoms, though obstinate and prolonged, appeared to be symptomatic of gastric or abdominal disturbances. A man, apparently in good health a few minutes before, met instant death out of hospital while in the privy, from the bursting into the pericardium of a small aneurism on the outside of the aortic valves. There was no other sign of recent disease of the heart, although its surface was covered with white spots from the effects of former pericarditis.

Brain and Nervous System.—To diseases of the brain and nervous system are referred

		Admissions.	Deaths.
Cephalalgia,	. . .	26	—
Vertigo,	. . .	1	—
Ictus solis,	. . .	5	4

			Admissions.	Deaths.
Apoplexia,	.	.	30	23
Paralysis,	.	.	12	2
Epilepsia,	.	.	24	—
Neuralgia,	.	.	3	—
Amentia,	.	.	32	—
Mania,	.	.	6	—
Delirium tremens,	.	.	33	4
Total,			172	33

Apoplexy and Ictus Solis.—Of 27 cases of apoplexy and *ictus solis* there occurred at

	Colaba.	En route to Poona.	Kirkee.	Bel- gaum.	Kurra- chee.	Hydra- bad.	Pesha- war.	Total
April 6.	0	0	1	0	0	0	0	1
10.	0	1	0	0	0	0	0	1
22.	0	1	0	0	0	0	0	1
23.	0	1	0	0	0	0	0	1
25.	1	0	0	0	0	0	0	1
28.	0	1	0	0	0	0	0	1
30.	0	2	0	0	0	0	0	2
June 1.	0	1	0	0	0	0	0	1
9.	0	0	0	0	0	1	0	1
10.	0	0	0	0	1	1	0	2
11.	0	0	0	0	0	1	0	1
12.	0	0	0	0	0	1	0	1
15.	0	0	0	0	0	1	0	1
16.	0	0	0	0	0	1	0	1
July 27.	1	0	0	0	0	0	0	1
28.	0	0	0	0	0	0	1	1
29.	0	0	0	0	0	1	0	1
Aug. 4.	0	0	0	0	0	0	1	1
6.	0	0	0	0	0	0	1	1
11.	0	0	0	0	0	0	1	1
12.	0	0	0	0	0	0	1	1
13.	0	0	0	0	0	0	3	3
Oct. 26.	0	0	0	1	0	0	0	1
Total,	2	7	1	1	2	6	8	27

En route to Poona.—Of these fatal cases, seven occurred betwixt the 10th May and 1st June in the 64th and 83d regiments, on their march from Panwell to Poona, in oppressively hot weather, five betwixt the 9th and 16th June, and one on the 29th July at Hyderabad, eight betwixt the 28th July and 13th August at Peshawar, and no cause but inconsiderate exposure to the op-

pressive heat of the climate in these months can be assigned for them. At Hydrabad the month of June was extremely close and sultry, the thermometer being 98° in the hospital during the heat of the day. The patient was generally brought into the hospital in a state of complete insensibility, with a full intermitting pulse, hot skin, and stertorous breathing. There was in most instances a puffing out of the cheeks, and discharge of frothy mucus from the mouth, the countenance was turgid and livid, pupils contracted, muscular movements of the upper and lower limbs, and involuntary discharge of urine and fæces; shortly before death, breathing became slower and more laborious, pupils suddenly dilated, profuse perspiration broke out, and the pulse became very quick and small. The men attacked were generally of intemperate habits.

Kirkee.—The case at Kirkee occurred in a man of good character, who had committed no irregularity or imprudence. He was seen within a few minutes by two medical officers. By stimuli he was roused with difficulty, but hemiplegia of the left side with stertorous breathing, intervened, and he died in forty-seven hours. The membranes of the brain were found thickened, and blood extravasated on the hemispheres, to the size of the palm of the hand, with softening of the cerebral substance. The pericardium contained blood coagulated and fluid, the arch of the aorta was thickened, but became thin in approaching the heart, and had sustained a small rupture.

Paralysis.—In the 10th Hussars one man was admitted twice for paralysis, and another twice for delirium tremens. The paralytic seizure was in the right hand, more particularly the flexor muscles, and ascribed to a stroke of the land-wind. Another very serious case was brought on by an all but fatal drinking bout, which left the patient a helpless paralytic in every limb; but from this condition he has gradually rallied, and can walk slowly with a stick.

86th.—Of two cases returned under paralysis in the 86th regiment, one had recovered in the end of March from coup de soleil, and is referred to in Part III. The patient, 29 years old, had been eight years in the Presidency, and often undergone treatment for dysentery, hepatitis, secondary syphilis, and other complaints, including two attacks of cholera morbus and two of delirium tremens. His last admission was on the 20th July, with great nervous depression and convulsive twitchings of the left arm. On and after the evening of the 21st he had repeated general convulsions with stertorous breathing, followed by stupor and coma, at first temporary but latterly permanent, betwixt the paroxysms, up to the 27th, when he died. On inspection were found congestion of the cerebrum with thin layers of lymph

on its surface, and under its middle lobe, over the petrous portion of the left temporal bone, an oval shaped depression an inch long, half an inch broad, and three lines deep, which corresponded to an eminence on the upper surface of the bone. The pia mater covering the depression was vascular, with the surrounding cerebrum, very little softened, and slight serous effusion in the base of the skull and spinal canal. By application of the trephine the bone under the depression, near the tympanum, was found to be carious, its interstices filled with a soft fatty-looking, dark-coloured matter, with a small opening of communication with the external ear.

Amentia and Mania.—Thirty-eight cases are returned under amentia and mania,—15 in the 64th, 5 in the 8th, 6 in the 60th, 3 in the 78th, 3 in the 83d, and 2 in the 86th regiment; but many of these were re-admissions, and under observation only. Four individuals in the 64th furnished all the admissions. These were brought before the General Invaliding Committee, and sent back to their regiments for observation and treatment.

Small and Chicken-Pox.—Six admissions for small-pox, and five for chicken-pox appear in the returns;—two in the 86th, three in the 60th, and one in the 78th Regiment. Two cases were fatal; one in an invalid of the 60th at Colaba; one in the head quarters at Peshawar; the last in the month of June, when the patient, having to endure a temperature of 105° , the excessive heat affected his head, and he died rather suddenly. The disease, modified by vaccination, had been previously going on well.

Three cases of varicella in the 64th at Poona, two in the 86th at Deesa.

Dropsy.—For dropsical complaints were

	Admitted.	Died.
Anasarca,	10	1
Hydrothorax,	1	...
Ascites,	3	3

The cases of ascites were in the 10th Hussars, 78th, and 86th regiments, one of them an invalid.

Rheumatism.—To rheumatic complaints are referred in the

	Admissions.	Deaths.
10th Hussars,	109	...
8th regiment,	90	...
22d ...	90	...
60th ...	34	...
64th ...	61	1
78th ...	88	...
83d ...	97	...
86th ...	192	...
	<hr/> 763	<hr/> 1

Of these cases were acute, 304 ; chronic, 420 ; lumbago, 36 ; odontalgia, 3 : 190, *i. e.*, one-fourth of the whole occurred at Deesa.

One chronic case in the 64th terminated fatally at Poona.

Venereal Complaints at every Station in every Corps.—Venereal complaints comprise

		Primary Ulcers.	Syphilis Consecu- tiva.	Bubo.	Gonorrhœa.	Hernia Humoralis.	Stricture.	Cachex. Syphil.	Phymoses et Pa- raphymoses.	Total.
Colaba,.....	22d,	9	2	12	9	14	...	...	2	48
	78th,	24	10	4	12	9	...	1	...	60
	Tot.	33	12	16	21	23	...	1	2	108
Poona,	64th,	48	10	23	32	9	...	...	...	122
	83d,	58	20	67	26	21	2	2	6	202
	Tot.	106	30	90	58	30	2	2	6	324
Kirkee,.....	10th,	54	4	69	61	20	5	...	...	213
Belgaum,	78th,	93	53	46	49	20	...	...	2	263
Deesa,	86th,	79	14	95	50	33	1	2	1	275
Kurrachee,	8th,	23	37	13	15	14	...	3	...	105
	22d,	14	6	3	11	7	...	...	...	41
	60th,	12	5	3	2	1	1	...	...	24
	64th,	14	4	17	13	2	...	...	...	50
	Tot.	63	52	36	41	24	1	3	...	220
Hydrabad,	8th,	58	11	57	61	16	2	...	2	207
Peshawar,	60th,	27	1	29	20	24	2	...	...	103
Aden,	78th,	15	1	6	3	7	2	...	1	35
At Sea,...	64th,	...	3	1	..	...	...	...	...	4
	83d,	9	13	2	7	4	...	...	...	35
	Total,	9	16	3	7	4	...	...	...	39

	Primary Ulcers.	Syphilis Consecu- tiva.	Bubo.	Gonorrhœa.	Hernia Hermoralis.	Stricture.	Cachex. Syphil.	Phymoses et Pa- raphymoses.	Total.
Queen's Depot,.....	1	7	...	...	...	...	1	...	9
Total,.....	538	201	447	371	201	15	9	14	1796

Cases of Secondary Syphilis.—Of these, four terminated fatally,—three under secondary syphilis, one under cachexia syphiloidea,—two of them in the 8th, two in the 78th Regiment, one of the 8th, an invalid, in whom extreme debility appeared to be the cause of death. In the other, at Belgaum, a most offensive muco-purulent fluid was found in front of the *sella turcica*, and about the olfactory nerves, with an opening in the cribriform plate of the ethmoid bone, through which the matter had passed from the nose. The nasal and superior palatine bones, as well as the tonsils, were almost totally destroyed by ulceration. The liver and spleen were enlarged, and a *lumbricus teres* found in the jejunum, but the stomach and bowels were otherwise healthy.

The fatal case returned under *cachexia syphaloidea* occurred in the 8th Regiment at Kurrachee. On inspection of the body, the face was studded with scars from former ulcers, and the limbs with the conical eruption of rupia. The branches of the meningeal artery were distended with a milky-looking serum, the cortical substance of the brain softened, and the ventricles and upper part of the spinal canal distended with serum.

This patient had experienced an attack of hemiplegia at Poona, but so far recovered, first in the upper, then in the lower extremities, as to be able to march to Hyderabad, a distance of ninety miles. Not long after, he was attacked with *rupia prominens*, and alarming debility, which induced his medical attendant to recommend his removal to Kurrachee, where he lingered only a few days.

Ophthalmia.—Of ophthalmic diseases, were admitted in the
 10th Hussars, 8th. 22d. 60th. 64th. 78th. 83d. 86th. Total.
 24 48 18 106 140 49 136 51 572

Of cutaneous diseases.

0 2 6 0 6 31 21 2 68

Ulcers and Abscesses.—Under ulcers and abscesses appear in

	10th Hussars,	8th Reg,	22d.	60th.	64th	78th.	83d.	86th,	Total	Died
Phlegmonic Abscesses.	101	96	69	27	40	41	67	52	493	1
Paronychia,	...	1	1	1	4	1	3	2	13	...
Apostema Lumbare	1	...	...	...	...	...	...	...	1	1
Ulcus simplex,	54	14	27	8	61	71	46	41	322	1
Grave,	...	...	...	...	...	...	2	...	2	...
Oris,	...	...	...	...	...	...	1	...	1	...
Fistula in ano,	...	5	...	...	...	...	...	...	5	...
Total,	136	116	97	36	105	113	119	95	837	3
Total,	1	...	...	...	..	...	1	1	...	...

Lumbar abscess.—There were two cases of lumbar abscess, one in the 10th Hussars, one in the 83d regiment, both fatal. The last occurred in a young soldier, who was ill nearly all the voyage from Ireland, an immense tumour having formed on the lumbar region. He was left in the depot hospital, Colaba, on his arrival, and afterwards sent to Poona, where he died. There were various openings in different directions communicating with each other among the muscles; but unconnected with disease of the spinal bones.

Wounds and Injuries.—Of wounds and injuries the 60th Rifle regiment, so hotly engaged in the siege of Mooltan, and other field operations, last year, has a smaller proportion than any other corps, being twenty-one in seven months from 1000 men, while the 10th Hussars had 114 in twelve months, from a strength of 675; but this last is much above the average, as dragoons are much more liable to small wounds and injuries, incapacitating them for immediate duty than foot soldiers.

Under this head are comprised

	10th Hussars,	8th.	22d.	60th.	64th.	78th.	83d.	86th.	Total.
Luxatio	...	1	4	...	...	...	...	1	6
Subluxatio	18	25	10	8	19	25	5	8	118
Vulnus Sclop.	...	...	...	...	...	...	1	2	3
Vulnus Incisum	22	3	15	2	15	16	5	9	87
Fractura	1	2	...	2	...	3	2	1	11
Contusio	83	43	21	9	28	33	33	26	276
Ambustio	...	2	1	...	10	1	3	2	19
Total	124	76	51	21	72	78	49	49	520

None of these were fatal.

There were no corporal punishments during the year in the 10th Hussars, the 8th or the 33d regiment. There were four in the 22d, 3 in the 64th, 2 in the 78th, 2 in the 86th, and 1 in the 60th regiment; 12 in all, or one in 628 of the whole force.

Under other diseases are returned

	10th Huss.	8th.	22d.	60th.	64th.	78th.	83d.	86th.	Total.	Died.
Aneurisma . . .	...	1	...	...	...	...	...	...	1	...
Atrophia . . .	...	1	...	...	...	...	...	...	1	...
Contractura . . .	2	1	...	...	2	...	...	...	5	...
Cynanche Tonsilaris	4	15	4	14	8	13	24	12	94	...
„ Trachealis . . .	...	...	...	...	1	2	...	1	4	...
„ Parotidæa . . .	...	1	...	...	2	...	1	1	5	...
Cystitis . . .	...	1	...	...	...	1	...	...	2	...
Dracunculus . . .	12	12	5	...	...	...	...	13	42	...
Dyseæa . . .	1	2	...	...	2	...	...	...	5	...
Dysuria . . .	1	...	2	1	...	...	...	4	8	...
Eneuresis . . .	...	...	...	...	1	...	...	...	1	...
Epistaxis . . .	...	...	...	...	1	3	...	3	7	1
Erysipelas . . .	...	...	...	...	1	1	2	...	4	1
Erythema Mercur.	...	...	...	...	...	...	...	1	1	...
Fungus hæmatodes . . .	...	1	...	...	...	...	...	...	1	...
Hæmorrhoids . . .	6	24	24	2	10	7	6	9	88	...
Hernia Inguinalis	2	2	...	...	...	2	...	3	9	...
„ Strangul. . .	...	1	...	...	...	...	...	...	1	...
Hydrocele . . .	1	3	2	...	...	...	...	2	8	...
Morbus Coxarius . . .	...	1	...	...	...	...	...	...	1	...
Morbus Cordis . . .	25	5	2	...	11	13	1	5	62	1
Necrosis . . .	1	1	...	...	1	1	...	...	4	...
Nephritis . . .	...	4	...	...	4	1	...	2	11	1
Otitis . . .	2	13	5	1	5	9	...	8	43	...
Observatio . . .	...	...	1	...	...	...	1	15	17	...
Palpitatio . . .	...	5	...	5	...	...	3	...	13	...
Pericarditis . . .	...	1	...	1	...	...	1	...	3	1
Periostitis . . .	...	...	...	...	...	...	2	...	2	...
Prolapsus Ani . . .	1	3	2	...	...	...	...	...	6	...
Sarcocele . . .	...	1	...	...	...	...	...	...	1	...
Scorbutus . . .	...	4	1	1	7	2	6	20	41	2
Scrofula . . .	2	23	2	4	13	5	8	14	71	1
Splenitis . . .	5	30	21	9	3	25	3	8	104	1
Tumours . . .	...	1	...	...	3	...	...	...	4	...
Tympanitis . . .	...	...	...	...	...	1	...	...	1	...
Varix . . .	1	...	2	...	...	...	...	1	4	...
Vermes . . .	5	7	6	...	3	...	...	2	23	...
Verrucae . . .	...	2	...	...	3	2	3	4	14	...
Total . . .	71	166	79	38	81	88	61	128	712	9
Total . . .	...	2	...	1	...	2	1	2	...	...

Popliteal Aneurism.—The first on this list is a case of popliteal aneurism sent from the left wing at Hydrabad to the 8th hospital, Kurrachee. Dr Tice tried to obliterate the sac by pressure; but œdema and threatened erysipelas of the limb compelled him to abandon a method he has seen successfully practised in Europe, and to tie the vessel a little below the origin of the *profunda femoris*. The patient underwent the operation while under the

influence of chloroform, without being conscious of more pain than the weight of an imaginary body resting on the inguinal region. The ligature came away in 15 days, when the wound was nearly healed, and the popliteal tumour had become less than a filbert in size.

Cynanche.—Of 103 cases of cynanche 94 affected the tonsils; 4 the trachea, and 5 the parotid glands. Of the whole, 25 occurred in the 83d, 16 in the 8th, 15 in the 78th, from 12 to 4 in the other corps.

Dracunculus.—Of 42 cases under dracunculus, 13 occurred at Deesa, 12 at Kirkee, 11 at Kurrachee, 3 at Hyderabad, and 3 at Colaba.

Epistaxis, fatal case in 78th.—Of 7 cases returned under epistaxis, one out of three had a very narrow escape, one terminated fatally, both at Belgaum.

The fatal case occurred in a private, thirty years old, of a sallow complexion, scrofulous diathesis, and dissipated habits, who the night before his admission, had been found drunk and bleeding profusely from the nose. When brought to hospital he was very pale and weak from loss of blood. Plugs of lint steeped in alum, were applied with temporary success, cold lotions to the head; a mild purgative was administered, and afterwards mineral acids internally, and generous diet was necessary from his weak state. His only bad symptom was want of sleep, for which he took anodynes. A constant oozing of blood but not alarming remained. He was in this state apparently improving until the morning of the 30th, when he became insensible, with heavy breathing, moaning, and scarcely perceptible pulse. Stimulants were administered without effect, and, as Mr Webster was about to perform transfusion for a last resource at 2 p. m., he expired.

On dissection was found effusion in the pericardium and pleura, the former being highly congested; the stomach contained about eight ounces of dark fluid, and its mucous membrane was softened, loose, and abraded. The intestines were of a dark leaden colour, and the spleen enlarged.

The second case was in a stout young sergeant, who had been struck by another man on the nose a week before admission; and though the injury had not troubled him much during that time, when he came to hospital on the night of the 9th October, he was in a state of syncope from loss of blood. Plugs of lint steeped in strong alum were introduced, his head was shaved and cold lotions applied without benefit; but dry cupping to the nape of the neck and shoulders had an almost instantaneous effect, and a permanently beneficial result. The bleeding stopped at 10 A. M., leaving him in a dreadfully weak state. He, however, made a satisfactory recovery, and was discharged on the 19th October.

Erysipelas.—Of 4 cases of erysipelas, one in the 83d regiment died. He was a fine young recruit. The disease attacked the head and face, numerous abscesses formed over the scalp, and he sunk from congestion of the brain after 12 days treatment. The head and face were much swollen, the tissues of the scalp broken by suppuration, the vessels of the brain and pia mater highly distended, and there was copious effusion of bloody serum in the ventricles and base of the brain.

Carditis.—A fatal case under carditis in a young soldier of the 78th regiment, two years and a half in India, who had suffered much from anasarca, and was admitted 9th September 1849, with symptoms of colonitis. Leeches were applied and oil administered. Next day the breathing was oppressed, pulse small, surface covered with perspiration; he moaned, and was unable to speak or swallow. Sinapisms to the chest and stimulants gave no relief, and he died on the 13th. The heart was found enlarged with fatty matter adherent to the pericardium, which contained four ounces and a half of serum.

Calculi passing from Kidney to Bladder.—The following interesting case of two urinary calculi, formed in the left kidney, finding their way through the ureter to the bladder, is abridged from Dr Thom's Report.

86th Regiment.—William Craig, aged twenty-two, an Irishman of temperate habits, and leucophlegmatic temperament of three years service, was admitted 19th August 1848, complaining of a feeling of weight in both lumbar regions, of twelve months duration, with dysuria and languor, but no vomiting or pyrexia. He had great difficulty in passing urine, and scalding pain along the urethra; he had no appetite; a pale anxious countenance; dry skin; sunk eyes; and a peculiar bluish tinge of the lower eyelids, with an ammoniacal odour from the body. Urine was stated to resemble at first thick pus, then to become clear. The bowels were open; the urine pale, alkaline, strongly ammoniacal. The urine being ascertained by chemical tests to be albuminous, he was placed on generous diet, vegetables and drinks, and the internal use of nitric acid and nitrate of potass, but with no very obvious advantage. On the 2d September, he passed two small thin, smooth, lamellated pieces of calculus, resembling phosphate of lime. Left kidney was the chief seat of uneasiness, countenance like that of a person with cholera, a strong ammoniacal odour. First warm baths and cupping of the loins, then nitrate of potash and conium, produced no good effect. Then, 5th October, guaiacum mixture was given with great benefit; and on the 8th, the urine was again tested, but no precipitates could, as before, be obtained from it. He appeared to be recovered, and was discharged 17th October. He was re-admitted on the 20th with œdema of the knees, without pain or urinary affection;

but on the 15th, the dysuria with the former langour and weight in the kidneys, especially the left, returned. Though the urine analyzed indicated this time the presence of little albumen, guaiacum was again prescribed, from the beneficial result formerly attending its use, and the morbid symptoms again rapidly disappeared. He was discharged 1st November. On the 1st December was again admitted with the same symptoms as at first, with frequent desire to void urine, which was passed only in drops. Analysis of the urine gave the same phenomena as before. He again recovered under the use of guaiacum. On the 10th April he was re-admitted with the same affection. The pain he now suffered was exquisite, and the urine could be voided only in drops. The catheter was passed on two successive days, but no calculus could be detected, and very little urine came away. There was exquisite pain in the left iliac and lumbar regions, and a circumscribed swelling in the former, which was very tender to the touch. The bowels became obstinately costive, requiring croton oil; peritoneal inflammation set in, and he died on the 19th April 1849 in great agony.

The heart was found soft, flabby, and somewhat enlarged, with coagulated lymph in the left ventricle. The descending colon adhered to the small intestines in front of the left kidney down to its termination in the rectum. From the diseased mass thus formed betwixt the spleen and pelvis, a small quantity of sero-purulent effusion had escaped into the abdominal cavity, and the cellular substance surrounding the kidney was infiltrated with purulent matter, which had penetrated in every direction, irritating and compressing and inflaming the parts it touched. The left kidney was found in a highly morbid state; soft, flabby, nearly double its natural size, with several sinuses or small abscesses on its convex surface, penetrating through the cortical substance, by which urine and pus had found their way, not only down the sides of the colon but into the peritoneal sac. On laying open the kidney its pelvis was seen to form a large sac, divided above into two cells of very unequal size; the cortical substance furnishing a thin puckered wall round this morbidly enlarged pelvis, so attenuated as to resemble a diseased bladder more than a kidney. The corresponding ureter was enlarged almost to the diameter of the aorta before its division, and its walls were thickened and almost muscular. It was widest and funnel-shaped at its termination in the bladder, admitting the finger with ease.

In the bladder were found two calculi; one the size of a hen's egg, flattened, and weighing two ounces one drachm. The other, much smaller, lay near the neck of the bladder. Their surface was smooth and of a light brown, their section white, arrangement concentric layers, and composition phosphate of lime. The cal-

culi nearly corresponded in size and shape to the cells in the kidney, and from this resemblance, as well as the history of the case, and the extraordinary dilatation of the ureter, there can be no doubt, as Dr Thom infers, that they had been originally formed in the left kidney, and passed along the ureter into the bladder.

Scorbutus.—Forty-one cases of scorbutus have been admitted, —twenty in the 83th; seven, 64th; six, 83d; four, 8th; one, 22d; one, 60th. Two of the cases in the 86th died, the termination being in one hastened or caused by abscess of the liver. On inspection of the body, in the other, were observed marks of previous pericarditis, and an effusion of bloody serum within the chest.

Scrofula.—Of seventy-one cases of scrofula, twenty-three occurred in the 8th, fourteen in the 86th, thirteen in the 64th, from two to eight in each of the other corps. One terminated fatally in the 8th regiment.

Splenitis.—Of 104 cases of splenitis, thirty, and only one fatal, occurred in the 8th regiment, twenty-five in the 78th, twenty-one in the 22d, nine in the 60th, eight in the 86th, five to three in other corps. The fatal case was complicated with disease of the brain, and is detailed in Dr Tice's report.

Pericarditis.—In a fatal case returned under pericarditis in the 60th detachment at Kurrachce, tubercles were found in the lungs, and three ounces of straw-coloured fluid within the pericardium.

The following tables give the numbers and proportion of admissions and deaths, at different ages, and length of service in India.

I. Influence of Age on Sickness and Mortality—Ages of Non-Commissioned Officers and Privates.

	The strength.	Admis- sions.	Deaths.	Ratio per cent.		
				Admissions to strength.	Deaths to strength.	Deaths to Admis.
Under 18 years	133	229	...	172	..	...
18 to 20	689	1425	39	207	5.6	3.9
21 to 22	1527	2675	53	175	3.5	1.9
23 to 25	1963	4033	64	205	3	1.18
26 to 30	1906	3726	98	195	5.14	2.6
31 to 35	706	1277	43	181	6.5	3.5
36 to 40	124	382	16	300	12.9	4.2
43 to 45	8	30	1	375	12	3.3
46 to 50	2½	10	...	400	20	...
Unknown,	15	62	...	49½	1	...
	7073	13249	317	196	44	23

This general return is incomplete from the April Monthly Returns of the 64th and 83d, then at sea, wanting the table of ages. It does not include either the average strength, admissions or deaths of those two corps for that month.

From this table it appears that the

Healthiest ages have been in succession.	And the least fatal ages.
1 under 18 years	1 under 18
2 — 21 to 22	2 — 23 to 25
3 — 31 to 35	3 — 21 to 22
4 — 26 to 30	4 — 26 to 30
5 — 23 to 25	5 — 18 to 20
6 — 18 to 20	6 — 21 to 35
7 — 36 to 40	7 — 41 to 45
8 — 41 to 45	8 — 46 to 50
9 — 46 to 50	

II. Length of service in India, embracing officers as well as non-commissioned officers and privates.

	Strength.	Admis- sions.	Deaths.	Ratio per cent.		
				Admis- sions to strength.	Deaths to strength.	Deaths to Admis- sions.
Under 1 year	2466	2132	147	87	5.9	6.9
1 to 2	490	875	23	176	4.7	2.6
3 to 4	1478	4689	30	317	2.03	.66
4 to 5	934	1952	13	210	1.39	.66
5 to 6	365	417	12	114	3.29	2.88
6 to 7	380	583	6	153	1.58	1.03
7 to 8	1035	1367	27	132	2.7	1.9
8 to 9	341	320	16	94	4.7	5
9 to 10	134	123	5	92	3.73	4.14
10 to 11	52	41	---	79	---	---
11 to 12	47	22	---	47	---	---
Above 12	27	11	---	41	---	---
Total,	9053	14451	331	1596	3.65	2.07

From this table the

Healthiest periods of residency in the Presidency have been	The least fatal periods
1 above 10 years	1 above 10 years
2 under 1 ,,	2 betwixt 4 and 5
3 betwixt 8 and 10	3 — 6 and 7
4 — 5 and 6	4 — 3 and 4
5 — 7 and 8	5 — 7 and 8
6 — 6 and 7	6 — 5 and 6
7 — 1 and 2	7 — 9 and 10
8 — 4 and 5	8 — 1 and 2
9 — 3 and 4	9 — 8 and 9

PART V.—*On Venereal Diseases and the influence of Lock Hospitals in their prevention, in the Presidency of Bombay.*

1. The records of the deputy inspector general's office in Bombay commence 21st December 1825, and embrace a period of 22 years, during the first 11 of which lock hospitals existed in Poona and Belgaum, though Queen's troops were not quartered at Belgaum before 1829.

2. The comparative prevalence of venereal diseases, in different years and periods and at different stations in the command, is shown in a "Return of Venereal Diseases, admitted annually into Her Majesty's European Military Hospitals, at different stations in the Bombay Presidency, from 21st March 1826 to 31st December 1849," which I have compiled from the Quarterly Sick Returns.

3. In 1826, women infected with venereal diseases were permitted to go at large in the neighbourhood of military cantonments, the purlicus of which and adjacent nullahs were their usual haunts, where they had every facility of communicating disease to the soldiers, while it was optional to themselves either to seek or decline medical treatment in lock hospitals, and few, if any, resorted thither for a cure, until incapacitated by the severity of their sufferings, or the unchecked progress of their disease from earning a livelihood in the way of their profession. In the city of Poona, more especially, were large numbers of abandoned females who lived chiefly by the military and their followers.

4. In the year ending 20th December 1826, venereal diseases formed one-third to one-fourth part of a heavy sick list in the European regiments.

The average strength being	}	2973	The Vene- real ad- missions.	}	1621	The ratio per cent.	}	54.52

5. The quarterly sick returns, but not the annual, specify the stations at which particular diseases occur, and the former commence in this presidency a quarter of a year later than the latter, that is, on the 21st March 1826. Of 289 cases which occurred in the first quarter of 1826, and are included in the 1621 admissions, the localities are unknown. Towards the remaining 1332 cases, distributed over the last three quarters,

The 4th Light Dragoons.	{ In 2 quarters at Kaira from a	Strength of	Contri- buted.	Being per Per cent. cent. for the per an- period. num.	
		530	62	13.04	26.08

		Strength of	Contri- buted.	Being per cent. for the period.	Per cent. per an- num.
The 4th Light Dragoons.	{ In one quar- ter at Kir- kee, }	400	5	·25	5·
2d Foot.	{ in three }	933	521	55·81	69·8
20th Foot.	{ quarters at }	982	569	57·74	72·17
	{ Poona, }				
The two last together,	.	1915	1088	56·81	71.
6th Foot.	{ in three }	641	177	26·37	36·48
	{ quarters at }				
	{ Colaba. }				

6. In December 1826, the commanding officer of Her Majesty's 20th regiment prohibited his men from frequenting the haunts of prostitutes in or near the city of Poona, and employed peons at the expense of the regiment, to take up for medical inspection all women of suspicious character found in the cantonment, and to place such as were diseased in the lock hospital for cure. These summary proceedings being followed by a marked decrease in the number of venereal cases in the 20th hospital, and practised soon after with similar success in the 2d Queen's, the commander in chief became satisfied of their utility, and government, approving of them, attached police peons to every corps with a moocadam over them, at the public expense, and allowed them a premium of one rupee in addition to their pay for every diseased woman they brought to hospital. Lhol bazaars, or establishments of females for the use of the men, with a strict superintendence of the health of the inmates, and their transfer for treatment when diseased to lock hospitals, appear also to have been introduced about this time; but are only incidentally noticed in the records of the deputy inspector general's office.

7. Here are given the results of these measures, actively prosecuted for three years, after that of their introduction.

			The strength was	Venereal admis- sions.	Ratio per cent. per annum.
In the whole Command.	{ In the year	{ 1826	2973	1621	54·52
		{ 1827	3361	996	29·6
		{ 1828	3239	607	18·74
		{ 1829	3614	688	18·88
		{ 1830	3831	661	17·1
	In 3 quarters of	1826	1537	1093	71·11
At Lock Hospital Stations.	{ In the whole year	{ 1827	2086	868	41·61
		{ 1828	2176	536	21·61
		{ 1829	2169	584	21·78
		{ 1830	2971	621	20·19

			Ratio.		
			The strength was	Venereal admissions.	per annum.
In the 20th Regiment, Poona.	{ In 3 quarters of	1826	982	567	72.17
At Colaba and Bombay.	{ In the year	{ 1827	955	396	41.46
		{ 1828	942	167	17.83
		{ 1829	893	72	8.09
		{ 1830	808	38	4.7
In the 2d Queen's at Poona.	{ In 3 quarters of	{ 1826	933	521	69.8
		{ 1827	756	416	55.03
		{ 1828	947	246	21.97
		{ 1829	892	130	14.57
In Her Majesty's 6th Regiment at Colaba.	{ In the year	{ 1830	843	70	8.3
		{ 1826	647	177	36.48
		{ 1827	647	81	12.52
		{ 1828	741	71	9.58
Poona.	{ In the year	{ 1829	634	241	38.01
		{ 1830	735	266	36.19

8. It hence appears that, by vigorous and well directed preventive measures, in aid of lock hospitals, venereal diseases were reduced in number and severity.

		From.	To.	From.	To.	Per cent. of the strength.
In the whole command.	{	1821 in 1826	661 in 1830	i. e. 51.5	17.1	
At Lock Hospital Stations.	{	1039 of 1826	621 in 1830	71.8	21.42	
In Her Majesty's 20th Regiment.	{	567 of 1826	98 in 1830	72.17	10.93	
In 2d do. do.	{	521 of 1826	70 in 1831	69.8	8.3	
In 6th do. do.	{	177 of 1826	71 in 1828	36.48	9.58	

9. In 1831, the number of police peons was reduced from six to two for each corps, their monthly pay from six to five rupees, the gratuity withdrawn, and the moocadums discharged. The few peons retained being now deprived of their accustomed reward, neglected their duty, loose women found their way back to the cantonments, and venereal diseases again increased.

		During that year			
		The strength was	Venereal admissions.	Rate per cent.	
In the whole command.	{	3778	992	26.25	i. e. 9 above 1830
At lock hospital stations.	{	2900	921	31.76	i. e. 10

10. The 4th Light Dragoons at Kirkee in 1829 and 1830 employed a moocadum at eight, and six peons at six rupees each per month. In 1831 the former was discharged, and the latter reduced to two at five rupees each.

In	The strength was	Venereal Admissions.	Rate per cent.
1829 . . .	617	117	19
1830 . . .	661	106	16.05
1831 . . .	660	266	40.03

being twice and a half more in 1831 than in 1830.

11. Of the 40th regiment in

	The strength was	Venereal Admissions.	Rate per cent.
1830 at Belgaum, .	707	177	25.17
1831 at Poona, .	675	351	51.69

12. This increase appears to have stimulated to renewed efforts commanding officers of corps, who expended the regimental funds, most liberally and most beneficially, in the employment of additional peons. But these last being little known, distinguished by no badge, and exercising powers that might have been legally disputed, never attempted to follow suspected women beyond the regimental lines, at a short distance from which they met the men, setting all precautions at defiance. On the island of Colaba much of this intercourse could be prevented, and the Queen's 2d regiment of foot, stationed there in 1832, admitted only sixteen venereal cases from a strength of 503, being 3.18 per cent. At Belgaum, on the other hand, where it was more difficult to impede the approach of idle and dissolute women, the 20th regiment admitted 76 in 1831, 118 in 1832, the first being twice the number of admissions for 1830 in the same corps at Colaba. The venereal admissions into the 6th hospital at Colaba were reduced to 81 in 1827; and to 71 in 1828; yet, after the removal of that corps to Poona they amounted in 1829 to 241, and in 1830 to 266.

13. At lock hospital stations. | In the whole command.

In	The strength was	Venereal Admissions.	Rate per cent.	The strength was	Venereal Admissions.	Rate per cent.
1831 .	2900	921	31.76	3778	992	26.25
1832 .	3868	780	27.2	3751	812	21.65
1833 .	2024	655	32.22	3573	757	20.07
1834 .	2088	436	20.88	3407	643	21.81
1835 .	2081	421	20.33	3402	663	19.29
1836 .	1700	413	24.29	3718	698	18.75

14. Lock hospitals and all other preventive measures in Bombay were abolished in December 1836. Venereal diseases have since progressively increased in number; and, in proportion to the strength, excepting only in the years 1840-42 and 43, during which the strength of the Queen's troops at Poona and Bel-

gaum, the most fertile hot beds of venereal pestilence, was reduced to less than one half its previous average, by the large proportion on field service, where they were comparatively little exposed to that detestable infliction.

15. Previously to 1832 the sick returns of the Queen's troops commenced on the 21st of the month. From that year on the 1st, and the annual returns which were originally dated from 21st December of one year to the 20th December of the next, corresponded with the civil year, betwixt 1832 and 1836, but have since commenced on the 1st April. The annual return, therefore, commencing 1st January 1836 terminated 31st March 1837, and comprised five quarters.

16. During the last eleven years. At Poona, Kirkee, and Belgaum, formerly

		Lock Hospital Stations.			In the whole Command.		
		The aver- age strength.	Vene- real admis- sions.	Rate per cent. per annum.	Aver- age strength.	Vene- real ad- missions.	Rate per cent per an- num.
1st Quarter 1837	1837	2038	165	32·35	3335	208	23·56
	1838	2051	646	31·01	3482	958	23·55
	1839	2085	727	34·91	4676	1096	23·44
	1840	1114	300	26·93	3899	597	15·35
	1841	2035	646	31·74	4391	940	21·41
	1842	1549	399	25·76	6009	1063	17·69
	1843	1983	550	27·74	6844	1260	18·41
	1844	2874	1046	36·40	6045	2034	33·64
	1845	2515	1003	39·80	5955	1770	29·72
	1846	2808	873	31·16	6020	1536	25·51
Year ending 31st March.	1847	3127	1469	36·98	6854	2191	31·95
	3 last Quarters.	1847	3923	1453	46·24	6090	1890	38·79
Aggregate,		*25784	9272	—	*59120	15542	...
Average,		2344	843	31·7	5375	1413	26·29

From this table it appears that the annual proportion of venereal diseases has been greater from 1st April 1847 to December last than in any year since 1826.

17. During the last twelve months, *i. e.*, from 1st April 1847 to 31st March 1848, of the Queen's troops serving

	Average		Average		Average	
	The average strength has been	number sick.	number sick.	sick from Venereal disease.	Rate of Venereal sick to the strength whole	Rate of Venereal sick to the strength whole
At Kirkee,	644	64	11	1·76	17·19	
Poona,	1991	196	55	2·76	28·06	
Belgaum,	1475	117	47	3·19	40·27	
Colaba	970	40	10	1·03	25·	
Deesa,	1464	57	17	1·16	29·82	

* This aggregate strength for eleven years contains only one fourth of the strength in the first quarter of 1837, and three fourths of that in the three last quarters of 1847.

	The average number has been	Average number sick.	Average number sick from Venereal disease.	Rate of Venereal sick to strength.	Rate of Venereal to the whole sick
At Kurrachee, .	1705	46	8	·47	17·39
Detachment, en route 15 weeks, .	433	30	4	·92	12·5
Total average, .	6412	521	143	2·25	27·45

18. In a letter dated "Military Department, No 3492, Bombay Castle, 3d August 1846," the secretary to government informs the adjutant general of the army, that the reason assigned for the abolition of lock hospitals was "simply their uselessness;" and that the late Dr Burke, Inspector General of Her Majesty's Hospitals, in a report addressed to the military secretary, Government of India, on the 21st March 1834 shows,

(1.) "That since the abolition of lock hospitals in Bengal the proportion of disease has continually decreased."

By an abstract of venereal disease in Her Majesty's regiments in Bengal, given in Dr Burke's letter, it appears that

"During the existence of the lock hospital system, viz. in the years 1827, 28, and 29, the proportion of venereals to strength was 30·1 per cent."

And that "since the abolition of the lock hospital system in the years 1830, 31, 32, and 33, the proportion of venereals to strength was 20·2 per cent."

19. By the accompanying return of venereal diseases in H. M's. regiments in Bombay for the last 22 years, and by the annual sick return for 1826, it appears that

During the existence of lock hospitals in Bombay from 1826 to 1836, the proportion of venereals to strength was 23·28 per cent.

And since their abolition from 1837 to 1847, the proportion was 26·29 per cent.

(2.) "That in the Bombay Presidency venereal complaints were less by at least two-thirds at stations without lock hospitals than at those where lock hospitals existed."

And the Bombay Medical Board have hence, according to Dr Burke, given and repeated an opinion, that "the lock hospitals under that presidency may safely be abolished."

20. But, with all deference to these high authorities, it appears to me that the preponderance of venereal diseases, at particular military stations, must have existed before the stations were selected from others for the foundation of lock hospitals, as it now exists eleven years after their abolition, and is therefore to be regarded as the cause, but in no sense as the effect or offspring of these institutions. During the existence, indeed, of lock hos-

pitals in Bombay venereal diseases were 17·95, and since their abolition, 20·49 per cent. more prevalent at lock hospital than at other stations.

From 1826 to 1836.

	The average strength was	The annual venereal admissions.	The rate per cent.
At lock hospital stations,	2292	666	29·06
At other stations,	1152	138	11·11

Difference, . . . 17·95

From 1837 to 1847.

At stations where lock hos- pitals had been,	2344	843	35·93
At other stations,	3031	570	15·47

Difference, . . . 20·49

(3.) “That, as the proportion of venereal affections in her Majesty’s troops in the Bombay Presidency, with its lock hospital system, was greater by one-third than in Bengal, where no lock hospitals have existed for upwards of three years, the arguing advantages from the continuance of the lock hospital system in Bombay seems to be derived from impressions and sources not affording conviction from the force of facts.”

21. The difference in the degree of prevalence of venereal diseases has been equally great at different stations in Bombay, both during the existence and since the abolition of lock hospitals. If venereal diseases were one-third more prevalent with lock hospitals in Bombay than without them in Bengal in 1833, they were more prevalent in Bombay in 1847, eleven years after the abolition of lock hospitals, than during any year of their existence since 1826, that year which preceded the introduction of preventive aids, indispensable to their success.

(4.) “In Bengal, on the 31st August 1833, the average strength of her Majesty’s troops was 1514
The number of venereal cases in hospital, 60
The rate per cent. 8”

22. In Bombay, on the 31st August 1833, | On the 29th April 1848.

The average strength of her Majesty’s troops was	3539	6415
The number of venereal cases in hospital,	42	135
The rate per cent.	1·2	2·1

or 9 per cent. higher 11 years after the abolition of lock hospitals, than at the date selected by Dr Burke while they ex-

isted. The causes which multiply venereal diseases, and the facilities for preventing or curing them, may be very various in the three presidencies, as well as at the different stations of each. There are in Bombay neither remedies of presumed efficacy in the cure of venereal diseases known to the natives, as in Bengal, nor old bawds to the uninterrupted exercise of whose superintending care of the females entrusted to them, Dr Burke seems to attach so much importance, as a protection to the health of the troops there.

(5.) According to Dr Burke, the proportion of venereal diseases was greater in Bombay, after the appointment of police peons in 1831, than previously in 1826; but he arrives at this conclusion by comparing the proportion that occurred in 6 months of 1826, with the proportion that occurred in the whole year of 1831, the first being 36·9, the second 38·5.

23. Now if we double 36·9, we find the *annual* proportion in 1826 to be 73·8—i. e. 35·3 per cent. higher, instead of 1·8 lower than in 1831. Nor is this all. To illustrate the inefficiency of police peons, Dr Burke has selected the very year in which their powers were paralyzed by a reduction of two-thirds in their number, and one-sixth of their pay. If he had taken, as an example, one of the three years they were in full force and activity, his own table would have given 21·4 per cent. as the proportion of admissions to strength in 1830, being 52·4 per cent. less than in 1826.

24. The following recapitulation gives an abridged view of the extent to which venereal diseases have prevailed in the Queen's forces serving in this presidency during the last 22 years:—

	At Lock Hospital Stations.			In the whole command.		
	The average strength was	Average annual admissions.	Ratio per cent.	The average strength.	Average annual admissions.	Ratio per cent.
During the existence of the Lock Hospitals						
In 1826	1537	1093	71·11	2973	1621	54·52
1827	2086	868	41·61	3361	996	29·6
1830	2971	621	20·9	3818	661	17·1
1828 to 30, 3 years	2639	580	21·98	3567	652	18·25
1831 to 36, 6 years	2778	604	26·11	3605	761	21·11
1827 to 36, 10 years	2367	623	26·32	3569	752	21·07
1826 to 36, 11 years	2292	666	29·15	3453	804	23·25

	At Lock Hospital Stations.			In the whole command.		
	The average strength	Average annual admissions.	Ratio per cent. Since the abolition of Lock Hospitals.	The average strength.	Average annual admissions.	Ratio per cent.
In 1837 to 47 } 11 years }	2344	An. aver. 843	31.7	5375	1413	26.29
During the whole period embraced by the returns—						
1826 to 47, } 22 years }	2318	An. aver. 755	32.51	4404	1109	25.15

25. It has been already remarked that the annual proportion of venereal diseases was greater from 1st April to 31st December last, than in any year since 1826. Their average proportion was above one-fourth of the whole number sick in hospital during the year ending 31st March last. They have deprived government for days and weeks annually since 1826 of the services of 1109 European soldiers, and permanently during last year of the services of 143. But these large numbers do not exhibit the whole mischief inflicted by them; for the ruined health and inefficiency of a considerable proportion of invalids, and of men admitted under other heads, may be traced to attacks of venereal disease, and to the hospital confinement, discipline, and treatment required for their cure.

26. That lock hospitals did not accomplish the objects for which they were established, during the whole of their existence in Bombay, is no proof that they are incapable of doing so, with the conditions indispensable to their success. These conditions are the employment of agents, in sufficient number for the detection of venereal diseases in prostitutes, and the compulsory seclusion and medical treatment, until restored to health, of every detected case. The very remarkable success which attended such preventive measures betwixt 1827 and 1830—four years only out of the eleven during which lock hospitals existed—in the whole command, at lock hospital stations, and in particular corps, has been already pointed out.

27. After a careful and patient examination of the question in all its bearings, my deliberate opinion is, that lock hospitals, though of very great use, during a few years of their existence in Bombay, might have been made, with proper aids, permanently and greatly more useful, and that their re-establishment for the compulsory seclusion and cure of prostitutes, labouring under venereal diseases, together with the organization of a police force and health officers for the apprehension and examination of suspected cases, are now urgently required, and are the measures most likely to succeed in preserving the health and efficiency of the Queen's troops, heretofore and now so very seriously impaired by the extraordinary prevalence of that class of diseases, at every important military station in the command.



